

CLOSURE PLAN

**CHARDONOL CORPORATION**

Houston Manufacturing Plant

2434 Holmes Road  
Houston, Texas 77051

EPA I.D. NUMBER: TXD 000807875

## CLOSURE PLAN OUTLINE

### Introduction

- A. Equipment Inventory
- B. Closure Performance Standard
- C. Maximum Waste in Storage
- D. Decontamination Activities
- E. Closure Schedule
- F. Closure Cost Estimate
- G. Financial Assurance
- H. Certification
- I. TDWR Industrial Solid Waste Registration

CLOSURE PLAN

INTRODUCTION:

Chardonol Corporation is a specialty chemical manufacturing facility in Houston, Texas.

This plan identifies all necessary steps that will be required of Chardonol Corporation and or its contractors to completely close the facility at the end of its intended operating life.

A Post Closure Plan will not be required for this facility since all wastes will be removed and disposed of off-site.

Chardonol Corporation will maintain an onsite copy of the Closure plan and all subsequent revisions to the plan until the certification of closure completeness has been submitted and approved by the Executive Director, TDWR and the Regional Administrator of EPA, Region 6.

The estimated closure date for this facility is expected to be the year 2000. At the conclusion of final closure, Chardonol Corporation will secure a registered professional engineer certification that the facility has been closed according to the requirements and specifications of the approved plan.

Chardonol Corporation will provide the Executive Director, TDWR and the Regional Administrator with at least 180 days notification prior to the expected date of final closure activities.

A. EQUIPMENT INVENTORY

The following is an inventory of manufacturing operations equipment which will remain unclosed during the life of the facility.

- 1) Autoclave (oxylkylation) Unit 2A
- 2) Autoclave (oxylkylation) Unit 2C
- 3) Ester kettle, Unit 1B
- 4) Glass lined Unit
- 5) Acrylic acid polymerization Unit
- 6) Finished compound blending Unit
- 7) Pilot Unit
- 8) Tank Farms
- 9) Tank car railsiding/loading/unloading unit
- 10) Tank truck loading/unloading unit
- 11) All ancillary process equipment (i.e., pipes, lines, etc.)
- 12) Q. C. /Process laboratories/Sample Rooms
- 13) Utilities Area
- 14) Maintenance Shop
- 15) Warehouses
- 16) Office buildings

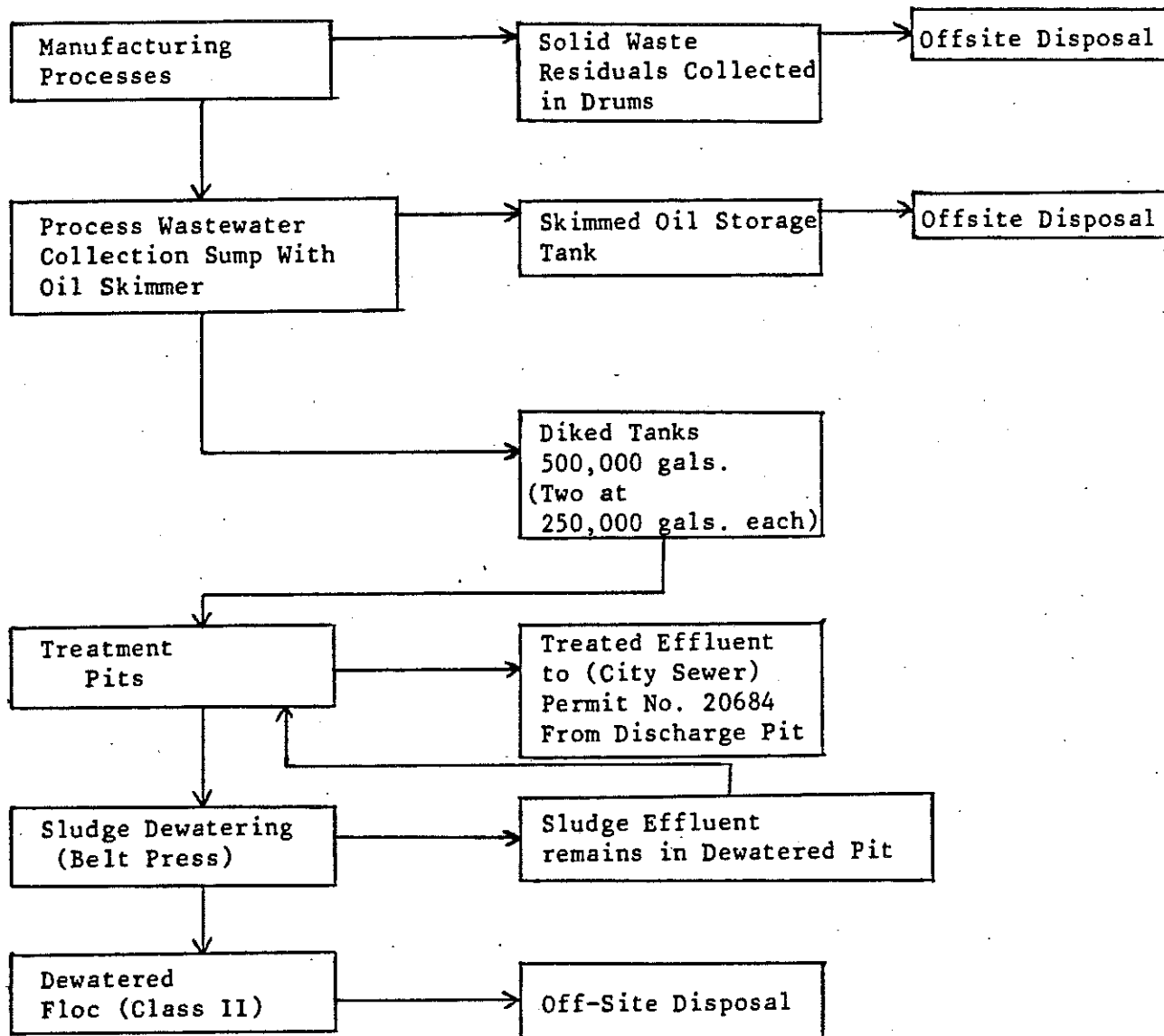
Wastewater treatment units which will continue to operate during the unclosed life of the facility are:

- 1) Waste collection sump/oil skimmer
- 2) Skimmed oil storage tank
- 3) Two (2) wastewater storage tanks (250,000 gallons each)
- 4) Treatment pits
- 5) Belt Press
- 6) Treated effluent sewer line

A waste management flow diagram is provided in Figure No. 1.

Chardonol Corporation will amend the final closure plan accordingly, if there are any modifications.

FIGURE 1

WASTEWATER FLOW DIAGRAM

Pre-closure activities will be as follows:

- 1) All marketable bulk and drummed chemical will be sold.
- 2) Empty tank cars will be returned to the owner.
- 3) All nonmarketable chemical and waste will be disposed of offsite at a registered waste management facility.
- 4) Empty drums will be sold to a registered drum reconditioner.
- 5) Prior to dismantling, all manufacturing process units, tanks, and ancillary equipment will be rinsed and/or steam cleaned internally as much as possible to minimize decontamination after dismantling. Rinse effluents will be sent to waste treatment for processing and disposal. (Note: This is the current standard operating procedure for cleaning vessels and lines between each batch of different chemical products.)

Closure will then be completed within 180 days of this event or, if applicable, 180 days after approval of an amended closure plan if that is later.

All process units, structures, tanks, piping, and ancillary equipment will be dismantled, decontaminated and either sold or disposed of off-site. Both

process equipment and equipment used for dismantling will be decontaminated in accordance with procedures in section D of this Document.

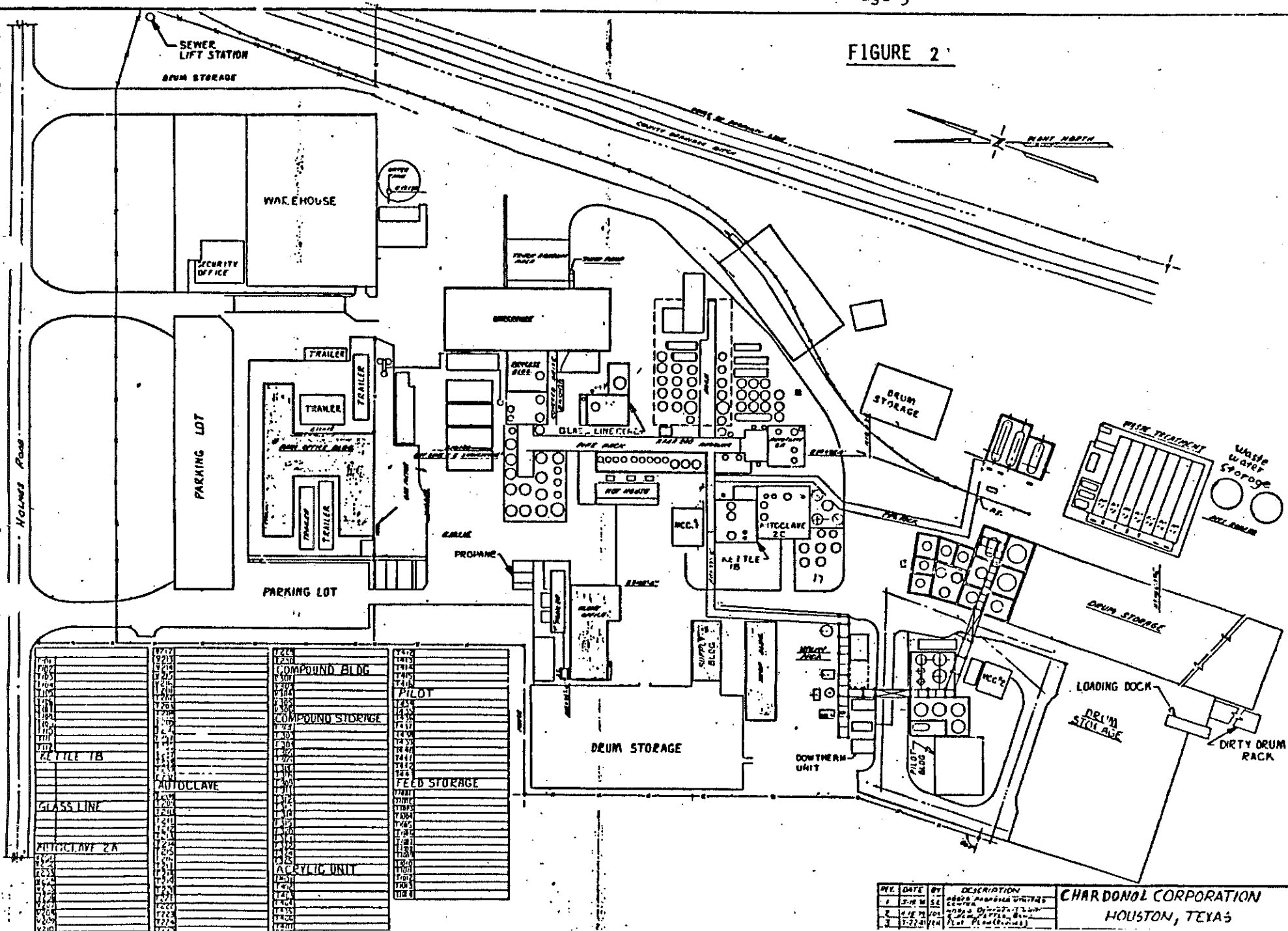
If there is any evidence of spills from tanks and/or connecting lines, soil samples will be taken to determine the extent of such contamination. Even though soils in the facility are not expected to be contaminated, the possibility of contamination occurring during the dismantling and cleaning of equipment and structures does exist.

A facility plan lay-out is provided in Figure No. 2.

**CLOSURE PLAN  
CHARDONOL CORPORATION**

HOUSTON MANUFACTURING PLANT  
2434 Holmes Rd.  
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**FIGURE 2**



PKY.	DATE	BY	DESCRIPTION
1	3-18-74	SL	ADDER PARASITIZED WITH 725 CENTRA
2	4-18-74	104	ADDER OXYMETHYL 725 5-18-74, 104
3	7-22-74	124	Plot Plot (P. 104)

CHARDONOL CORPORATION  
HOUSTON, TEXAS

B. CLOSURE PERFORMANCE STANDARDS

The proposed closure plan is designed to conform with the requirements of the Texas Administrative Code, Subchapter J, 335.212 and 40 CFR, Subpart G 265.111. Specifically, the objective is to insure that the final facility closure is conducted so as to minimize threats to human health, the environment, eliminate any need for post closure care and prevent any unwanted occupational exposure to our employees. The proposed courses of actions will most assuredly prevent any ambient escape of hazardous waste, their constituents, contaminated runoff, or residual decomposition of products in the environment. We are confident the efforts included herein will satisfy the closure performance standards.

C. MAXIMUM WASTE IN STORAGE

An estimate of the maximum inventory of wastes in storage or in processing at any given time during the life of the facility is 264,000 gallons or 369,000 gallons if item 4 below is added in.

This is as follows:

- |                    |                                                                                                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) 5,000 Gallons   | -Storage tank for skimmed oil from process wastewater collection sump.                                                                                                            |
| 2) 250,000 Gallons | -Two (2) 250,000 gallons wastewater storage tanks. (Note: This includes wastewater in storage and/or treatment at any given time. One wastewater storage tank is held in reserve. |
| 3) 9,000 Gallons   | -Drum storage of off-specification product and/or solid waste for off-site disposal.                                                                                              |
| 4) Treatment Pits  | -Process waster in sewer pits at 10,000 gallons each and 5,000 gallons of sludge in each pit could be present at anytime.                                                         |



#### D. DECONTAMINATION ACTIVITIES

All decontamination activities will be contracted to outside professional firms certified to perform such activities. Decontamination will include any and all equipment required for closure. Decontamination parameters and levels of decontamination will be negotiated with the TDWR.

During final closure, the dismantling, cleaning and removal of process units, tanks and ancillary equipment will be contracted to a certified engineering contractor. This firm will also provide a certified determination of the extent of cleanliness in accordance with the performance standards.

After dismantling and decontamination, the equipment will be removed from concrete slab foundations and either sold or scrapped. The concrete slab foundations will be steam cleaned.

All clean up and decontamination activities will be supervised by the Plant Manager, and his foreman and a supervisor of the engineering contractor. Protective equipment will be used by all personnel when decontamination of equipment is in process. This will be in force during disconnection of lines, taking samples and cleaning spills. Personnel will follow standard company policy of self-hygiene when leaving the decontamination area or facility.

#### E. CLOSURE SCHEDULE

Chardonol Corporation will notify the EPA Regional Administrator at least 180 days before the initiation of closure activities. The proposed schedule for final closure is detailed in Figure Number 3.

**FIGURE #3**

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[illegible]

F. CLOSURE COST ESTIMATE

The following table summarized the estimated final closure costs of the facility by closure activity.

<u>ACTIVITY</u>	<u>CLOSURE COST ESTIMATE</u>
1) Final Waste Inventory Removal/Disposal	\$ 10,000.00
2) Dismantling, Decontamination & Cleaning (Equipment & Manpower)	100,000.00
3) Removal of Contaminated Soil	5,000.00
4) Certification/Deed Recordation	5,000.00
5) Contingency	5,000.00
 TOTAL	 \$125,000.00

\*Contingent upon degree of contamination if applicable.

The closure cost will be kept at the Chardonol Corporation plant in Houston. It will be revised whenever a change in the operation of the facility affects closure. Necessary inflationary adjustments will be made on an annual basis.

G. FINANCIAL ASSURANCE

Chardonol Corporation has non-sudden insurance assurance mechanism for this facility.

Since all waste and contaminated equipment will be disposed of offsite, post closure care is not being anticipated for this facility. An original, signed copy of this document has been sent to the Executive Director of the Texas Department of Water Resources. A copy of this document is enclosed in a separate section of this plan.

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CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_  
Bob Finden  
Vice President of Manufacturing



SOUTHERN PETROLEUM LABORATORIES, INC.

Certificate Number 066886  
Invoice Number 163695  
June 25, 1984

Resource Engineering, Inc.  
11 Greenway Plaza  
Suite 1724  
Houston, Texas 77046

Attention: Mr. Marshall Smith

Sample Description: Background Soil Sample

Sample #3

Date Sampled: 06/15/84

Date Received: 06/19/84

			<u>Date</u>	<u>Time</u>	<u>Analyst</u>
<u>Mercury total</u>	< 0.005	<u>mg/l</u>	06/22/84	3:00 pm	SLB
EPA storet number 71900					
<u>Mercury, total</u>	0.30	<u>ppm</u>	06/22/84	3:00 pm	SLB
<u>Toluene</u>	< 50.0	<u>ppb</u>	06/20/84	2:00 pm	DD
<u>Xylene</u>	< 50.0	<u>ppb</u>	06/20/84	2:00 pm	DD

Quality Assurance: These analyses are performed in accordance with EPA guidelines for quality assurance. These procedures include the following as a minimum requirement: comparisons against known standards in each run, one in ten sample splits, and a quarterly method review against known spike samples.

SOUTHERN PETROLEUM LABORATORIES, INC.



**TABLE A**  
**Soil Test Results (0-12")**

<u>Sample #</u>	<u>Location</u>	<u>Total Xylene µg/kg</u>	<u>Total Toluene µg/kg</u>	<u>Total Mercury Mg/kg</u>	<u>EP Toxic Mercury Mg/l</u>
A	Bottom	<50.0	<50.0	<0.1	<0.005
B	Bottom	72	<50.0	<0.01	<0.005
C	Bottom	<50.0	<50.0	0.20	0.052
D	Bottom	<50.0	<50.0	<0.1	<0.005
E	Sidewall	<50.0	<50.0	<0.1	<0.005
F	Sidewall	<50.0	70	<0.1	<0.005
G	Sidewall	<50.0	<50.0	<0.1	<0.005
H	Sidewall	<50.0	<50.0	<0.1	<0.005
I	Sidewall	<50.0	<50.0	<0.1	<0.005
BG-1	Background	<50.0	<50.0	0.12	<0.005
BG-2	Background	<50.0	<50.0	0.07	<0.005
BG-3	Background	<50.0	<50.0	0.30	<0.005

Note: See Figure A - Site Plan for location of these samples.

Revised 8/22/84

MEMO FROM

R O O S E V E L T   S M I T H

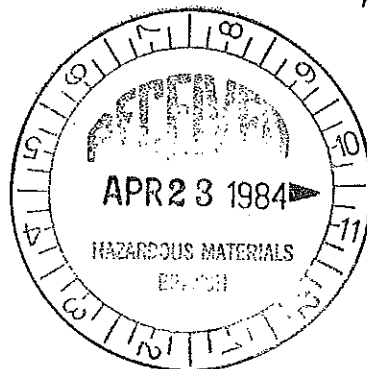
Marilee Hood This <sup>9/1/84</sup>

is the application  
we talk about on the  
Telephone 4/19/84.

Thank you

R Smith

TXD 00080 7875





U.S. Environmental Protection Agency  
Office of Solid Waste  
Contract No. 68-W9-0041

MAGNA/CHARDONOL/  
COOK COMPOSITES AND POLYMERS  
RCRA FACILITY ASSESSMENT REPORT  
(TXD000807875 AND TXD108999863)

RCRA Implementation Contract  
Zone II  
Regions VI-X

**PRC**

**PRC Environmental Management, Inc.**

In Association with:  
NUS Corporation  
ICF Technology, Inc.  
Versar, Inc.  
Ecology & Environment, Inc.  
HydroGeoLogic, Inc.



MAGNA/CHARDONOL/  
COOK COMPOSITES AND POLYMERS  
RCRA FACILITY ASSESSMENT REPORT  
(TXD000807875 AND TXD108999863)

Prepared for:

U.S. Environmental Protection Agency  
Region 6  
Allied Bank Tower, 12th Floor  
1445 Ross Avenue  
Dallas, Texas 75202

Prepared by:

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350 North St. Paul Street  
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and

HALLIBURTON NUS Environmental Corporation  
910 Clopper Road  
Gaithersburg, Maryland 20877-0962

EPA Contract No. 68-W9-0041

Work Assignment No. R262210

October 7, 1991

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# **DISCLAIMER**

This report was prepared for the U.S. Environmental Protection Agency, Region VI (EPA) by PRC Environmental Management, Inc., in fulfillment of Contract No. 68-W9-0041, Work Assignment No. R26622-10. The opinions, findings, and conclusions expressed herein are those of the contractor and not necessarily those of the EPA or other cooperating agencies. Mention of company or product names is not to be considered an endorsement by the EPA.

This document is intended to assist EPA and State personnel in exercising the discretion conferred by regulation in developing requirements for an owner/operator to conduct the RCRA Facility Investigation (RFI) pursuant to 40 CFR 264. EPA will not necessarily limit RFI or other requirements to those that correspond with the recommendations set forth herein. EPA and State personnel must exercise their technical judgment in using the RCRA Facility Assessment report as well as other relevant information in determining what RFI or other requirements to include in a permit or an order.

## EXECUTIVE SUMMARY

A RCRA Facility Assessment (RFA) was performed at the Magna/Chardonol, Houston Manufacturing Plant/Cook Composites and Polymers, Chardonol Division (CC&P) facility, previously Magna Corporation (Magna), a Division of Baker Performance Chemicals, Inc. in Houston, Texas. The purpose of the RFA was to identify and assess the potential for release of hazardous wastes or hazardous constituents from solid waste management units (SWMUs), active and inactive, and other areas of concern (AOCs), as well as to evaluate the needs for further actions. This RFA report incorporates the results of a file review of materials available from EPA Region VI, the Texas Water Commission (TWC), and the visual site inspection (VSI), performed on August 29, 1991.

CC&P owns one 19.35 acre tract within the city limits of Houston. This area includes land around the Magna Chemical closed Wastewater Impoundment (SWMU #1) and the main production facility. Magna Chemicals kept the 1.1996 acres of property immediately surrounding the impoundment for the purpose of complying with Federal RCRA and TWC closure requirements.

The CC&P is located at the site of Magna/Chardonol chemical formulation plant and consists mostly of buildings and tanks, and a closed surface impoundment. Production at these buildings began in the 1950s. This property has had several prior owners. These owners and the approximate date of their ownership, in chronological order are: Atlas Powder (1950 to 1961), Aquaness (1961 to 1970), Milchem Incorporated (1970 to 1972), Magna Corporation (1972 to 1983), Chardonol (1983 to 1990).

Primary operations currently conducted at the facility include manufacturing and compounding of specialty chemicals, some of which are different from those produced by Magna and Chardonol. Main operations include chemical processing, alkylation and polymerization facilities.

All of the process operations occur within the main production facility. The main process units include the autoclave units building, the ester kettle units, compound blending unit, and the glass lined unit building. The plant currently employs 32 people.

The VSI was conducted on August 29, 1991. The inspection team consisted of representatives from HALLIBURTON NUS Environmental Corporation (working under subcontract to PRC-EMI), and CC&P. The inspection team toured the facility and identified 31 SWMUs and one AOC. Eight of these SWMUs were within the manufacturing building, and majority of the remaining SWMUs were at the facility's wastewater treatment systems and waste storage areas. The AOC identified during the VSI includes tank truck loading and unloading area.

Several units inspected during the VSI appear to warrant further RCRA facility investigation and/or sampling. The purpose of sampling would be to determine if hazardous wastes or hazardous constituents are being released to the environment. These include the Wastewater Impoundment (SWMU #1), Black Tar Area (SWMU #2), Treatment Pits (SWMU #8), Metal Catch Trays at Tank Car Railside (SWMU #22), Old Bone Yard (SWMU #24), and Sewer Effluent Sump at Treatment Pits (SWMU #29).

## 1.0 INTRODUCTION

This section of the RFA report covers the purpose and scope of the RFA program. The contents of the other sections of this report are also described.

### 1.1 Purpose of the RCRA Facility Assessment

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) provide new authority for EPA to require comprehensive corrective actions for releases of hazardous waste and hazardous constituents from solid waste management units (SWMUs) at facilities subject to the permitting requirements of RCRA Section 3005(e) and at facilities applying for RCRA permits. This authority requires EPA to address the need for corrective action for previously unregulated releases to air, surface water, soil, and groundwater, and to address the generation of subsurface gas. Section 3004(u) allows EPA to require corrective actions after permit issuance through a schedule of compliance. In order to determine the necessary permit conditions, EPA Regions conduct a RCRA Facility Assessment (RFA) at each facility. The RFA, which consists of a Preliminary Review (PR), a Visual Site Inspection (VSI), and, if appropriate, a Sampling Visit (SV), provides the basis for further investigations to be conducted after permit issuance.

The central purpose of an RFA is to identify releases or potential releases requiring further investigation. According to EPA's RFA Guidance Document, the four purposes of a RFA are as follows:

1. To identify and gather information on releases at RCRA-regulated facilities;
2. To evaluate solid waste management units and other areas of concern for releases to all media and regulated units for releases to media, other than groundwater;
3. To make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility; and
4. To screen from further investigation those SWMUs which do not pose a threat to human health and the environment.

### 1.2 Procedures

This report represents an evaluation of SMWUs and areas of concern at the Magna/Chardonol/Cook Composites and Polymers (CC&P)

facility and, as such, summarizes the result of a review of the file materials available from EPA Region VI and Texas Water Commission (TWC), and the VSI performed at the facility. The file materials were obtained during a search of relevant files at the EPA Regional Office in Dallas, Texas, in August, 1991, and at the TWC office in Austin, Texas, in August, 1991. File materials reviewed encompassed documents relevant to the RCRA, CERCLA and NPDES programs. Information collected during the file review was used to assemble a potential SWMU list and a general list of questions to CC&P representatives at the facility prior to the VSI.

The VSI was conducted by HALLIBURTON NUS at Magna/Chardonol/Cook Composites and Polymers (CC&P) facility in Houston, Texas on August 29, 1991 and was used to verify file information and observe current conditions of the SWMUs. The HALLIBURTON NUS representatives present for the duration of the inspection activities were Mr. Philip Winsborough, Mr. Mark Guarisco, and Mr. Larry Basilio. The CC&P representatives were Mr. Robert Finden and Mr. Charles Earhart.

Section 2.0 of this report contains a description of the Magna/Chardonol/CC&P facility, including its historical and current operations. Individual SWMUs are also identified in Section 2.0, along with a summary description of wastes managed by the facility. Section 3.0 provides an overview of the facility's environmental setting, comprising meteorology and climate, surface water, hydrogeology, and receptor information. Section 4.0 contains detailed discussions of each SWMU. Section 5.0 covers other areas of concern (i.e., releases from spills or evidence of contamination of unknown origin). Section 6.0 consists of a broad assessment of release pathways, covering the potential for releases to soil, groundwater, surface water, and air. Section 7.0 provides conclusions and recommendations, and Section 8.0 provides a list of references to the report. The Summary VSI Trip Report and Photographs and the Solid Waste Management Unit and Areas of Concern Location Map are presented as Appendices A and B, respectively, to this report.



## 2.0 FACILITY DESCRIPTION

This section of the RFA report describes the location of the Magna/Chardonol/Cook Composites and Polymers Facility (CC&P) and its historical and current operations, provides a list of the identified SWMUs and AOCs, and describes the sources and types of wastes managed at the facility.

### 2.1 Site Location

The CC&P Facility is located in southeastern Texas within Harris County and in the southeast section of the corporate limits of Houston, as shown in Exhibit 2-1. The facility is a part of Cook Composites and Polymers, Chardonol Division, which is headquartered in Kansas City, Missouri (Ref. 35). The facility was formerly known as Magna Chemicals and as the Chardonol Corporation Houston Manufacturing Plant. The present company, Cook Composites and Polymers, is a 50 percent ownership by Cook Paint and Varnish and Total Chemie (a French Company). The facility is located at 29°40'10" North latitude and 95°33'30" West longitude (Ref. 15). The address of the facility is 2434 Holmes Road, Houston, Texas 77051. The facility location is shown in Exhibit 2-2.

CC&P owns one 19.35 acre tract within the city limits of Houston. This area includes land around the Magna closed Wastewater Impoundment (SWMU #1) and the main production facility. Following the sale to CC&P, Magna Chemicals kept the 1.1996 acres of property immediately surrounding the impoundment for the purpose of closure (Ref. 7).

### 2.2 Historical and Current Operations

The CC&P is located at the site of Magna Corporation/Chardonol chemical formulation plant and consists mostly of buildings and tanks, and a closed surface impoundment. Production at these buildings began in the 1950s. This property has had several prior owners. These owners and the approximate date of their ownership, in chronological order are Atlas Powder (1950 to 1961), Aquaness (1961 to 1970), Milchem Incorporated (1970 to 1972), Magna Corporation (1972 to 1983), Chardonol (1983 to 1990) (Ref. 35).

The operations of the plant prior to Magna's ownership are not known. It is known that construction of the plant by Atlas Powder was initiated in the 1950s and production began in the early 1960s. Prior to Chardonol purchasing the facility in December, 1983, Magna operated the facility as a batch chemical manufacturing facility, producing organic specialty chemicals for the oil field production enhancement, and in various refinery processing operations. These chemicals consisted of intermediates for and blends of corrosion inhibitors, emulsion breakers, surfactants and water treating

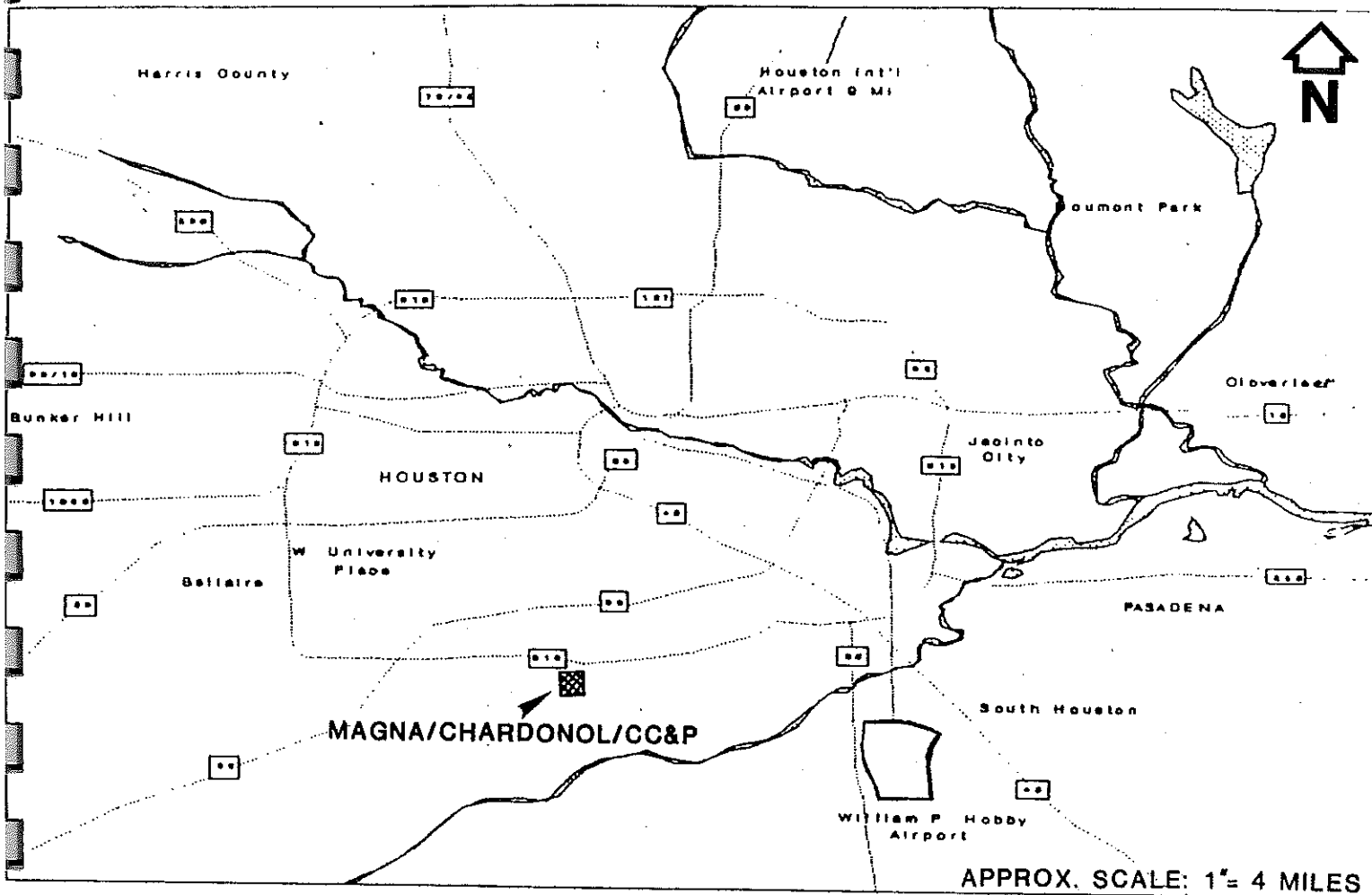
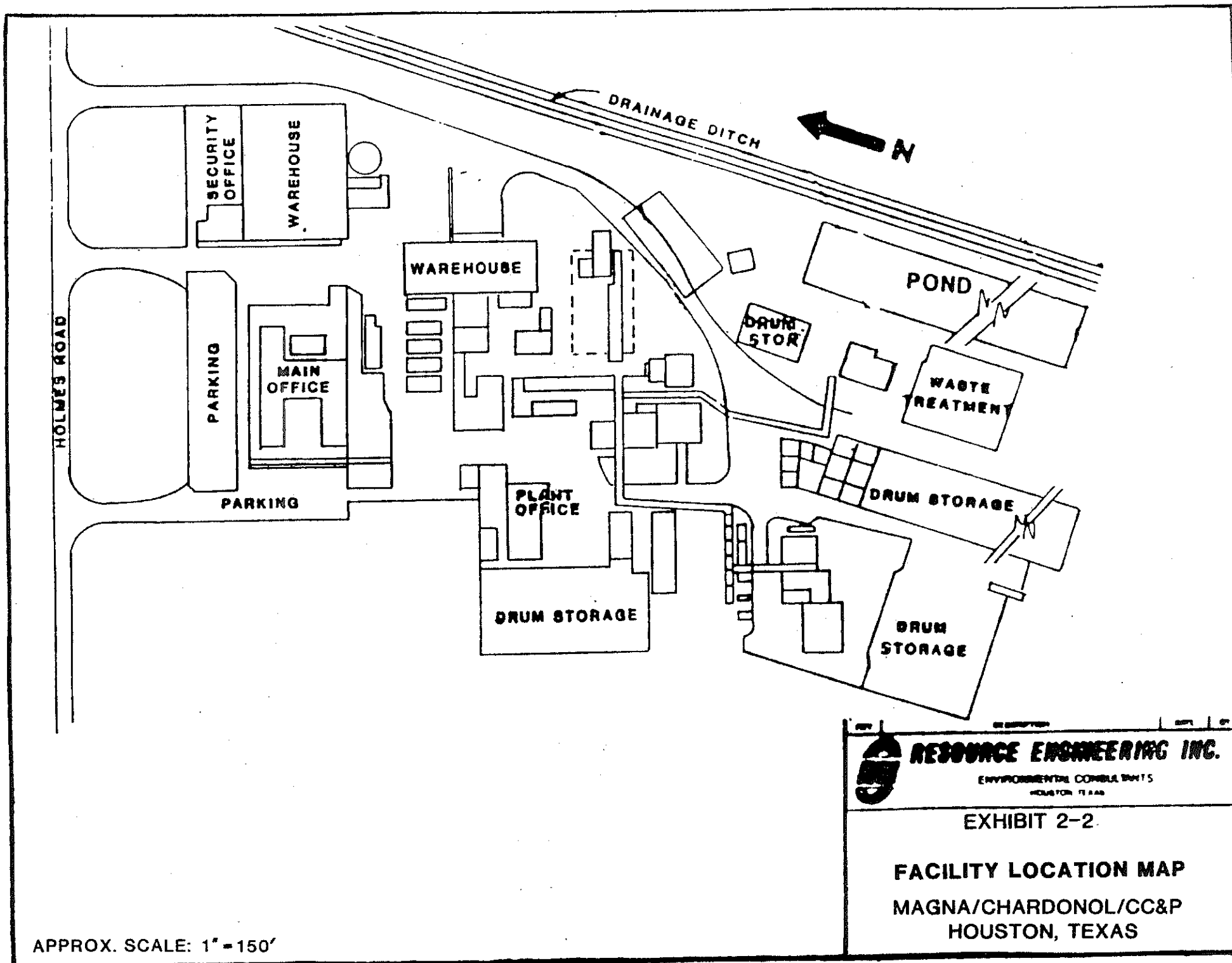


EXHIBIT 2-1  
**SITE LOCATION MAP**  
**MAGNA/CHARDONOL/CC&P**  
**HOUSTON, TEXAS**



**HALLIBURTON NUS**  
Environmental Corporation



chemicals for various applications associated with the production of petroleum (Ref. 4). Primary operations today at the facility include manufacturing and compounding of specialty chemicals, some of which are different from those produced by Magna and Chardonol. Main operations include chemical processing, and alkylation and polymerization facilities. The acrylic unit, which was a continuous operating polymerization unit utilizing acrylic acid as the monomer is no longer being used (Ref. 35).

Magna Corporation kept the property surrounding and including the closed Wastewater Impoundment (SWMU #1) in order to complete closure. This impoundment was used from 1961 until January, 1983, when it was placed in inactive status by re-routing piping and covering the sludges that remained in the bottom of the basin with an impervious cover to minimize exposure to rainfall. In July 1984 removal of the sludges was initiated and the unit was closed in February 1985 (Ref. 3).

All of the process operations occur within the main production facility. The main process units include the autoclave units, the ester kettle units, compound blending unit, and the glass lined unit (Ref. 35).

### 2.3 Summary of Wastes Handled

Magna/Chardonol/CC&P generates and stores non-hazardous and hazardous wastes for less than 90 days prior to on-site recycling or shipping off-site for disposal.

The Magna/Chardonol/CC&P facility has a wastewater treatment facility (WWTF) on-site. This wastewater treatment facility has had several changes over the years. Wastewater from the manufacturing process is first sent to the Wastewater Collection Sump (SWMU #3), after which the skimmed oil is sent to the Skimmed Oil Storage Tank (SWMU #4), where it is stored. Oils were temporarily stored in this tank prior to off-site disposal. In 1981, the skimmer was removed and the Skimmed Oil Storage Tank (SWMU #4) was no longer used because there was a change in the process; diesel fuels were no longer used as a solvent in the process. The wastewater was discharged to the Wastewater Impoundment (SWMU #1). After 1983 the unit discharged wastewater to WWTF Enclosed Steel Storage Tanks #1 and #2 (SWMUs #11 and #12) by above-ground piping, which exits from the top of the sump (Ref. 36).

The Wastewater Impoundment (SWMU #1) (prior to 1983) and the WWTF Enclosed Steel Storage Tanks #1 and #2 (SWMUs #11 and #12) (after 1983) discharged the wastewater to the Treatment Pits (SWMU #8). This unit is used to pretreat wastewater by flocculation and precipitation prior to the wastewater being discharged to the POTW under City of Houston Permit No. 20684. The sludges generated are picked up by the Sludge Dewatering Belt Press (SWMU #9). After

the water is removed from the sludge, a mostly dry non-hazardous sludge is produced, this sludge is then collected in a WWTF Sludge Hopper (SWMU #23) and then sent off-site for disposal. Prior to 1982, the sludges were drummed in the Old Drum Storage Area at WWTF (SWMU #5) and then sent off-site. The sludge effluent is routed back to the Treatment Pits (SWMU #8) (Ref. 35).

As stated earlier, Magna retained ownership of the Wastewater Impoundment (SWMU #1) and was responsible for closing it. In June of 1984 Magna was able to successfully reclassify the Wastewater Impoundment (SWMU #1) sludges from Class I to Class II industrial solid waste. However, the reclassification did not apply to the Wastewater Impoundment (SWMU #1), which itself remained a Class I hazardous waste management unit. Magna was required to clean close the unit. The unit was closed in 1985. During closure, approximately 200 five thousand gallon tank trucks of fluid sludge were removed from the unit and taken for off-site disposal (Ref. 3). The Wastewater Impoundment (SWMU #1) was cleaned to background (less than 50 ppb) for xylene, toluene and mercury (Ref. 3). The unit was filled with compacted clay, graded for drainage, and capped and seeded (Ref. 3). However, TWC has not received a certification of clean closure for the unit from a registered certified professional engineer. In addition, Texas Water Commission (TWC) as a result of a comprehensive groundwater monitoring evaluation in 1987, determined that the monitoring wells were not adequately located in the true hydraulic gradient of the unit, and, therefore may not detect the edge and center of the plume where significant concentrations of the contaminants may be present (Ref. 20).

During closure of the Wastewater Impoundment (SWMU #1), Black Tar Area (SWMU #2) just south of the impoundment was uncovered. Black tar-like material had been placed in this area. This material was also removed during the closure of the surface impoundment (Ref. 20).

CC&P generates and stores non-hazardous and hazardous wastes. Both hazardous and non-hazardous wastes are shipped off-site for final disposal or reclamation. Currently, and for the past year, CC&P has been recycling wastes back into the process to utilize the glycols and other alcohols and solvents, and by rinsing containers and product vessels and reusing the solvents. Also recent operational changes have reduced the volume of several wastes generated so that they are no longer produced (Ref. 35).

The sources of wastes generated at the facility were associated with manufacturing and compounding chemicals, separating oil from wastewater, collecting sludges from the waste treatment plant, off-spec chemicals, laboratory glass and chemicals, solid waste (trash), solid and liquid copper waste, Calnox 9944, and maintenance of facility pumps (Ref. 4). Wastes generated on-site generally can be grouped into non-hazardous trash, wastewaters,

sludges from the Treatment Pits (SWMU #8), liquid hazardous wastes, and liquid (Texas Class 1) non-hazardous wastes (Ref. 35).

Non-hazardous trash is generated at several units at the facility and is collected in open and covered metal dumpsters and stored until it can be disposed of off-site. The trash is disposed of in a BFI solid waste landfill (Ref. 35).

Liquid hazardous wastes (solvents, corrosives) are containerized in 55-gallon drums and stored at designated locations around the facility in hazardous waste drum storage areas until they can be collected and transported off-site (Ref. 35).

The Magna/Chardonol/CC&P production plant generates solid waste, including recyclable materials (e.g., off-spec chemicals). The plant also generates hazardous wastes, primarily the oily layer from the plant wastewater, liquid chemicals from the plant, phenolic resins and other chemicals from blocked drainage or sumps, drum residues, and off-spec chemicals as wastes, which are received at the main production area hazardous waste storage facility. Other areas also have the potential to generate waste (e.g., laboratory building and Maintenance Shop), which would be transported to the drum storage areas or tanks for shipment off-site. CC&P has generator status and a separate EPA identification number for Magna, although CC&P and Magna had the same ID number until 1985.

#### 2.4 Identification of Solid Waste Management Units

As a result of this RCRA Facility Assessment, a total of 31 solid waste management units (SWMUs) and one area of concern have been identified at Magna/Chardonol/CC&P during the preliminary review and VSI. The definition of a SWMU adopted in the RFA reflects current EPA policy as stated in the July 15, 1985 Codification Rule (50 FR 28701), the RCRA Facility Assessment Guidance Document (October 1986), and other recent policy directives from the Office of Solid Waste and Emergency Response (OSWER). The Agency currently defines a SWMU as any discernable unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. This definition includes areas at a facility at which solid wastes have been routinely and systematically released. This definition specifically excludes accidental spill events that are not routine or systematic and units that manage materials that are not wastes. Recycled metal operations and storage areas were included in the definition of a SWMU due to known or suspected contamination by hydraulic oils, coolants or other materials. Based on this definition, the list of SWMUs identified at Magna/Chardonol/CC&P is presented below. In addition to these SWMUs, one area of concern (AOC), the Truck Loading/Unloading Areas, were identified during the VSI. Photographs of the SWMUs are presented in Appendix A. Appendix B includes maps which show the locations of the SWMUs.

SWMU No.	Name of Solid Waste Management Unit	RCRA Permitted SWMU	Status
✓1	Wastewater Impoundment	Yes*	Closed
✓2	Black Tar Area	No	Closed**
✓3	Wastewater Collection Sump	No	Active
✓4	Skimmed Oil Storage Tank	No	Inactive
✓5	Old Drum Storage Area at WWTF	No	Inactive
✓6	Dumpster for Filter Press Cake	No	Active
✓7	Wastewater Holding Tank	No	Active
✓8	Treatment Pits	No	Active
✓9	Sludge Dewatering Belt Press	No	Active
✓10	WWTF Piping/Chemical Sewer Conduits	No	Active
✓11	WWTF Enclosed Tank #1	No	Active
✓12	WWTF Enclosed Tank #2	No	Active
✓13	T-1011 Storage Tank	No	Active
✓14	Waste Storage Area in Laboratory	No	Active
✓15	Waste Storage Area in Maintenance Shop	No	Active
✓16	Container Storage Outside Maintenance Shop	No	Active
✓17	Tote Bins at Autoclave Units	No	Active
✓18	Tote Bins at Ester Kettle Unit IB	No	Active
✓19	Waste Storage Area at Glass Lined Unit	No	Active
✓20	Dumpsters at Glass Lined Unit	No	Active
✓21	Tote Bins at Finished Compound Blending Unit	No	Active
✓22	Metal Catch Trays at Tank Car Railside	No	Active
✓23	WWTF Sludge Hopper	No	Active
✓24	Old Bone Yard	No	Closed
✓25	Drum Staging Area #1	No	Active
✓26	Drum Storage Area	No	Active
✓27	Drum Staging Area #2	No	Active
✓28	Sewer Effluent Sump	No	Active
✓29	Sewer Effluent Sump at Treatment Pits	No	Active

✓30	Container Storage Outside Laboratory	No	Active
✓31	Container Storage Outside Process Areas	No	Active

\* Closure and Post Closure under RCRA 40 CFR 264.  
 \*\* Not closed under RCRA authority.

In addition to these SWMUs, the following area of concern was identified based on the PR and/or the VSI. Appendix B presents the location of the area of concern. Exhibit 2-3 is a tabulated description of the various SWMUs at the facility.

AOC No.	Name of Area of Concern
1	Tank Truck and Unloading Area



# EXHIBIT 2-3

## SWMU SUMMARY Sheet 1 of 8

	SWMU No. 1	SWMU No. 2	SWMU No. 3	SWMU No. 4
Name	Wastewater Impoundment	Black Tar Area	Wastewater Collection Sump	Skimmed Oil Storage Tank
Description	Compacted clay lined earthen pit after closure	Black tarry material	Two adjacent concrete cells (each 6'x6'x4')	Above-ground vertical 4000-gallon steel tank on legs
Operating Status	Closed	Closed	Active	Inactive
Waste Type	Wastewater and sludges	Tarry material	Oily wastewater	Skimmed oil
Waste Management	Storage of wastewater and sludges	Unknown	Oil separated historically by belt skimmer with wastewater being sent to Treatment Pits (SWMU #8)	Temporary storage of waste oils prior to off-site disposal
Release History	Confirmed groundwater and soil contamination	Confirmed soil contamination in the past	No release	No releases
Release Pathway Media	Soil/groundwater	N/A	N/A	N/A
Remedial Action	Removed 2/85	N/A	N/A	N/A
Release Potential	+++ Soil/groundwater ++ Surface water ++ Air o Subsurface gas	+ Soil ++ Groundwater + Surface water + Air o Subsurface gas	+	+
Potential Pathway Media	All	All	All	All
Reason for Release Potential Rating*	Nature of operations, type of waste, shallow water table and a lack of data	Contact with soil, nature of operations, unit design & location	Type of waste (oils and volatiles), unit design and location	Unit design and location
Need for RFI**	Yes	Yes	No	No
Media for Further Investigation	Soil/groundwater	Soil/groundwater	N/A	N/A

### Notes:

- \* Release Potential Rating: o = No potential for release  
+ = Low potential for release  
++ = Moderate potential for release  
+++ = High potential for release

\*\* Although these "Yes" ratings indicate further investigation is required, their release potential is specifically indicated in the "Reason for Release Potential Rating" column. For each SWMU requiring an RFI, the number indicates the priority.

## EXHIBIT 2-3

SWMU SUMMARY  
Sheet 2 of 8

	SWMU No. 5	SWMU No. 6	SWMU No. 7	SWMU No. 8
Name	Old Drum Storage Area at WWTF	Dumpster for Filter Press Cake	Wastewater Holding Tank	Treatment Pits
Description	Container storage area	20 cubic yard dumpster	6000-gallon steel tank	Seven concrete rectangular pits (each 80' x 12' x 4')
Operating Status	Inactive	Active	Active	Active
Waste Type	Dried sludge	Dried filter press cake from glass lined unit process	Process wastewater	Non-hazardous sludges
Waste Management	Dewatered sludge from Treatment Pits (SWMU #3) collected in drums	Containment of dried filter press cake	Above ground tank used to manage process wastewaters	Precipitation and flocculation
Release History	No releases	No releases	No releases	No release
Release Pathway Media	N/A	N/A	N/A	N/A
Remedial Action	N/A	N/A	N/A	N/A
Release Potential	+	+	+	+ Soil/ groundwater + Surface water ++ Air + Subsurface gas
Potential Pathway Media	All	All	All	All
Reason for Release Potential Rating	Nature of waste, unit on concrete pad	Nature of waste, unit on concrete pad	Nature of waste, closed tank, unit located on concrete pad	Nature of waste, open press area, location on concrete pad
Need for RFI	No	No	No	Yes
Media for Further Investigation	N/A	N/A	N/A	Air

**EXHIBIT 2-3**

**SWMU SUMMARY  
Sheet 3 of 8**

	SWMU No. 9	SWMU No.10	SWMU No. 11	SWMU No. 12
<b>Name</b>	Sludge Dewatering Belt Press	WWTF Piping/Chemical Sewer Conduits	WWTF Enclosed Tank #1	WWTF Enclosed Tank #2
<b>Description</b>	Belt press machine located over one of the Treatment Pits (SWMU #8)	Concrete troughs and lined piping	250,000-gallon enclosed steel tank surrounded by an earthen dike	250,000-gallon enclosed steel tank surrounded by an earthen dike
<b>Operating Status</b>	Active	Active	Active	Active
<b>Waste Type</b>	Non-hazardous sludges	Spilled products	Untreated process wastewater	Untreated process wastewater
<b>Waste Management</b>	Sludge dewatering	Collection and discharge to WWTF	Wastewater storage prior to treatment in WWTF	Wastewater storage prior to treatment in WWTF
<b>Release History</b>	No releases	No releases	No releases	No releases
<b>Release Pathway Media</b>	N/A	N/A	N/A	N/A
<b>Remedial Action</b>	N/A	N/A	N/A	N/A
<b>Release Potential</b>	+	+	+	+
<b>Potential Pathway Media</b>	All	All	All	All
<b>Reason for Release Potential Rating</b>	Nature of waste, location in concrete pad	Nature of waste, unit design	Enclosed, diked steel tank	Enclosed, diked steel tank
<b>Need for RFI</b>	No	No	No	No
<b>Media for Further Investigation</b>	N/A	N/A	N/A	N/A

**EXHIBIT 2-3**

**SWMU SUMMARY  
Sheet 4 of 8**

	SWMU No. 13	SWMU No. 14	SWMU No. 15	SWMU No. 16
Name	T-1011 Storage Tank	Waste Storage Area in Laboratory	Waste Storage Area in Maintenance Shop	Container Storage Outside Maintenance Shop
Description	8700-gallon wastewater tank	Waste containers ranging in size from 5-gallon to 55-gallons	Wastes stored in drums and tote bins	Wastes stored in drums and tote bins
Operating Status	Active	Active	Active	Active
Waste Type	Process wastewater	Waste products from process QA/QC tests.	Used oil and cleaning chemicals	Used oil and cleaning chemicals
Waste Management	Stores process wastewater from production area	Waste stored in small containers at lab	Oils and chemicals stored in drums and tote bins on a concrete floor	Oils and chemicals stored in drums and tote bins on a concrete floor
Release History	No Releases	No releases	No releases	No releases
Release Pathway Media	N/A	N/A	N/A	N/A
Remedial Action	N/A	N/A	N/A	N/A
Release Potential	+	+	+	+
Potential Pathway Media	All	All	All	All
Reason for Release Potential Rating	Located on concrete flooring and diked	Inside building, wastes stored on concrete floor	Inside building with concrete floor	Waste containers stored on pallets and in bins, unit located on a concrete pad
Need for RFI	No	No	No	No
Media for Further Investigation	N/A	N/A	N/A	N/A

**EXHIBIT 2-3**

**SWMU SUMMARY  
Sheet 5 of 8**

	SWMU No. 17	SWMU No. 18	SWMU No. 19	SWMU No. 20
Name	Tote Bins at Autoclave Units	Tote Bins at Ester Kettle Unit 1B	Waste Storage Area at Glass Lined Unit	Dumpsters at Glass Lined Unit
Description	Enclosed metal bins	Enclosed metal bins	Wastes from glass lined unit	Open topped dumpsters
Operating Status	Active	Active	Active	Active
Waste Type	Process waste	Process waste	Process chemicals and waste products	Non-hazardous filter press cake
Waste Management	Management of process wastes resulting from operation of autoclave units	Management of process wastes resulting from operation of ester kettle	Waste stored in carboys and tote bins	Cake temporarily managed in open topped dumpsters
Release History	No releases	No releases	No releases	No releases
Release Pathway Media	N/A	N/A	N/A	N/A
Remedial Action	N/A	N/A	N/A	N/A
Release Potential	+	+	+	+
Potential Pathway Media	All	All	All	All
Reason for Release Potential Rating	Construction of bins, concrete flooring in building, drains to WWTF	Construction of bins, concrete flooring in building, drains to WWTF	Construction of containers, concrete floor in building	Nature of waste, design of unit, unit located on concrete floor
Need for RFI	No	No	No	No
Media for Further Investigation	N/A	N/A	N/A	N/A

**EXHIBIT 2-3**

**SWMU SUMMARY  
Sheet 6 of 8**

	SWMU No. 21	SWMU No. 22	SWMU No. 23	SWMU No. 24
<b>Name</b>	Tote Bin at Finished Compound Blending Unit	Metal Catch Trays at Tank Car Railside	WWTF Sludge Hopper	Old Bone Yard
<b>Description</b>	Enclosed metal bins	Railsiding with metal catch trays between rails and above ties and concrete troughs	20 cubic yard dumpster on concrete pad	Landfill for disposal of plant non-hazardous trash and crushed drums
<b>Operating Status</b>	Active	Active	Active	Closed 1980
<b>Waste Type</b>	Process wastes	Spilled product and/or raw materials	Dried sludge	Non-hazardous trash and crushed drums from plant
<b>Waste Management</b>	Process wastes managed in tote bins	Receives drippage during loading	Temporary storage of dried sludge in an open topped dumpster	Landfill
<b>Release History</b>	No releases	No releases	No releases	No releases
<b>Release Pathway Media</b>	N/A	N/A	N/A	N/A
<b>Remedial Action</b>	N/A	N/A	N/A	Removed all materials in 1980
<b>Release Potential</b>	+	++ Soil/groundwater + Surface water + Air o Subsurface gas	+	+ Soil +++ Groundwater + Surface water + Air o Subsurface gas
<b>Potential Pathway Media</b>	All	All	All	All
<b>Reason for Release Potential Rating</b>	Unit design, location inside structure	Open topped area, catch basin on ground in concrete	Construction of container, location on concrete surface	Unit no longer exists, removed in 1980, area now under concrete slab
<b>Need for RFI</b>	No	Yes	No	Yes
<b>Media for Further Investigation</b>	N/A	Soil	N/A	Soil, groundwater

## EXHIBIT 2-3

SWMU SUMMARY  
Sheet 7 of 8

	SWMU No. 25	SWMU No. 26	SWMU No. 27	SWMU No. 28
Name	Drum Staging Area #1	Drum Storage Area	Drum Staging Area #2	Sewer Effluent Sump
Description	20'x50' outdoor drum staging area with concrete floor	80'x65' outdoor drum staging area with concrete floor	135'x200' outdoor drum staging area with concrete floor	In ground concrete sump with pump for discharging treated wastewater
Operating Status	Active	Active	Active	Active
Waste Type	Drummed waste	Drummed products, lab waste, recyclable materials	Non-hazardous sludges and liquids	Treated wastewater
Waste Management	Temporary drum storage	Temporary storage	Temporary storage	Discharges wastewater to a Houston POTW
Release History	No releases	No releases	No releases	No releases
Release Pathway Media	N/A	N/A	N/A	N/A
Remedial Action	N/A	N/A	N/A	N/A
Release Potential	+	+	+	+
Potential Pathway Media	All	All	All	All
Reason for Release Potential Rating	Uncurbed concrete area near fenceline	Curbed concrete floor	Location on concrete flooring	Type of waste discharged
Need for RFI	No	No	No	No
Media for Further Investigation	N/A	N/A	N/A	N/A

**EXHIBIT 2-3**

**SWMU SUMMARY  
Sheet 8 of 8**

	SWMU No. 29	SWMU No. 30	SWMU No. 31
Name	Sewer Effluent Sump at Treatment Pits	Container Storage Outside Laboratory	Container Storage Outside Process Areas
Description	In ground concrete sump for discharging wastewater to POTW via SWMU #28	Waste containers	20'x20' container storage area
Operating Status	Active	Active	Active
Waste Type	Pretreated wastewater	Lab wastes	Process wastes
Waste Management	Discharges wastewater to a POTW	Management of lab wastes	Temporary storage prior to off-site disposal
Release History	Overflow in 9/21/90 due to sticking valve	No releases	No releases
Release Pathway Media	Soil/surface water	N/A	N/A
Remedial Action	N/A	N/A	N/A
Release Potential	+ Soil ++ Groundwater + Surface water + Air o Subsurface gas	+	+
Potential Pathway Media	All	All	All
Reason for Release Potential Rating	Unit design, nature of waste	Container of drums, location on concrete floor	Construction of containers, design of unit
Need for RFI	Yes	No	No
Media for Further Investigation	Soil	N/A	N/A



### 3.0 ENVIRONMENTAL SETTING

This section of the RFA report covers meteorology, surface water characteristics, geology and soil characteristics, groundwater quality, and receptor information.

#### 3.1 Land Use

The Magna/Chardonol/CC&P facility is located in the 19.35 acre Industrial Park, an industrial and warehouse complex in Houston, Texas. CC&P is located in the former location of Magna Corporation, which manufactured oil field chemicals. The area was originally designed as a chemical manufacturing plant. Chardonol and subsequently CC&P uses the original facilities for the manufacture of oil field chemicals and polymers, and for storage of solid and hazardous wastes.

The surrounding area is predominantly industrial and commercial, with some residential, and is located in a section of southeast Houston (Ref. 20). A small percentage of the land is used for cropland and pasture land. Urban population centers include the City of Houston and the incorporated towns of Bellaire, and West University Place, two miles to the northwest. Large population centers are located throughout the area. Houston has a population of about 1,800,000. The site is one mile south and east of Astroworld and the Astrodome, and seven miles west of Hobby Airport. The adjoining land use includes a pipe supplier, a laydown yard, a producing oil field, and a bulk oil/gasoline terminal (Ref. 35).

#### 3.2 Climate

The climate at the CC&P site in southeastern Texas is characterized by a mean annual temperature of 70°F, with a mean annual relative humidity of about 75 percent. Mean January temperatures range from 44°F to 64°F, while the mean July temperatures vary from 74°F to 92°F. The growing season averages 309 days. The prevailing wind direction is to the northwest at an annual mean speed of 10 miles per hour (Ref. 17).

Average annual precipitation for the area is 46 inches. The months with the highest precipitation are May, with approximately 5.0 inches, and July, with approximately 4.8 inches. The mean annual total snowfall is less than 1 inch per year. Snow is a rare occurrence (Ref. 17).

#### 3.3 Topography and Surface Water

Houston is within the West Gulf Coastal Plain physiographic province. The topography is characterized by a relatively flat surface with only moderate dissection by streams and raised

elevations of 5 to 85 feet above sea level. Houston is located within the Coastal Prairie and Marsh Zone. Regionally, the land slopes gulfward at 1.65 ft/mile. The average surface topographic elevation at this site is 55 feet above mean sea level (Refs. 18 and 20).

The area around the CC&P site is characterized by numerous small drainage ditches eventually draining to Sims Bayou, which drains to Buffalo Bayou (the Houston Ship Channel) and to Galveston Bay. The CC&P site runoff flows to a ditch then to Sims Bayou of the San Jacinto River Basin. Sims Bayou is classified as a Gulf Coastal mid-size watershed fishery (Ref. 18). The facility is not located within a 100-year flood plain (Ref. 14). Also, none of the immediate areas surrounding the facility are classified as wetlands (Ref. 18).

### 3.4 Soils, Geology, and Groundwater

Soils. The surficial soils at the CC&P site are described by the USDA Soil Conservation Service as Urban Land. Urban Land soils are soils that are altered, disturbed soils that are built up by industrial uses. Usually, these areas are extensively built up, where 75 to 100 percent of the mapped area is either covered by structure or disturbed by cutting, filling or grading. The soils making up Urban Land have been so altered and obscured that they cannot be properly classified (Ref. 31). The soil consists of silty clay, sandy clay and clay loams. It is estimated that the permeability of the soils is between 0.06 and 4 inches per hour (Ref. 20).

Regional Geology. Houston is located in Harris County in southeastern Texas. CC&P is located approximately 5 miles southeast of downtown Houston. Harris County lies in the Gulf Coast Physiographic Province of Texas. Surficial deposits are represented by the Beaumont Formation. The Beaumont Formation was deposited in the latter part of the Pleistocene Epoch. Deposits of the Beaumont Formation are primarily ancient delta and delta plain deposits. Within the Beaumont Formation, lesser amounts of chenier and lagoonal deposits are present. Sediments of the Beaumont Formation are dominated by clays and muds, or deposits of clayey sands and silts. The physical properties of the clays and muds differ from the clayey sands and silts. Generally, the clays and muds exhibit lower permeabilities, higher water holding capacity, and poor drainage, whereas the clayey sands and silts are of moderate permeability, moderate water holding capacity, and moderate drainage (Refs. 21 and 22).

Shallow soil borings conducted at the site indicate a silty clay being present below the site. Silty to sandy seams are generally present within this clay, and it is these features which are screened in the monitor wells for the Wastewater Impoundment (SWMU #1) (Ref. 20).

Groundwater. Harris County lies within the San Jacinto River Basin. Aquifers utilized on a regional basis are the Evangeline and the Chicot aquifers. Underlying the Evangeline Aquifer is the Burkville confining unit, which is of Miocene Age. No groundwater in the Houston area appears to be obtained from units underlying the Burkville confining unit.

Regionally, the Evangeline Aquifer is equivalent to the Goliad Formation of Pliocene age. The Evangeline Aquifer is typically wedged-shaped and has a high sand to clay ratio. The top of the aquifer is approximately 1000 feet deep and the thickness averages 2000 feet. The Evangeline is noted for its abundance of good quality water and is considered one of the most prolific aquifers in the Texas Coastal Plain. Recharge of the Evangeline Aquifer probably occurs where Pleistocene deposits overlie the Goliad Formation. Water percolating down through the Pleistocene formations would enter directly into the Goliad Formation at its updip limit. The Chicot Aquifer consists of sand units of all of the Pleistocene formations present. The lithology is primarily of sand and clay, but because of the mode of deposition of these formations, the stratigraphy does not lend itself to a simple definition. No wide spread confining layers overlie the Chicot, and the fact that this aquifer extends to the surface where the Beaumont Formation crops out, suggests that the Chicot is under water table conditions. Recharge for the Chicot Aquifer is probably from direct infiltration from the ground surface. The recharge area includes all fluvial channel sand units within the area paralleling the Gulf Coast where Pleistocene formations crop out (Ref. 22, 23, and 25).

The uppermost aquifer that underlies the CC&P site is an unnamed and unconfined aquifer. The facility is not located on a recharge area of a major/minor aquifer. The aquifer has a hydraulic conductivity in the range of  $1 \times 10^{-7}$  to  $1 \times 10^{-4}$  cm per second. And an effective porosity of 0.1 to 0.25 (Ref. 20).

Three groundwater monitor wells are located at the site in the vicinity of Wastewater Impoundment (SWMU #1). The screened interval for the wells ranges from 10 to 17 feet below grade. The water table at the CC&P site is very shallow. It is approximately 5 feet below the ground surface. The thickness ranges from 1.5 feet to 5.0 feet (Ref. 20). The groundwater flow direction appears to be to the southeast. There appears to be a 12 foot-thick continuous aquitard beneath the unit. Flow rate and depths to deeper aquifers could not be determined due to the lack of site specific data. Also, based on the results of the 1987 Comprehensive Monitoring Evaluation, it could not be determined if there is a hydraulic connection between the uppermost aquifer with deeper zones. Two groundwater wells are located on adjacent property. No information is available on the depths or screened intervals of these wells (Ref. 20).

### 3.5 Receptor Information

There are currently 32 employees at the CC&P facility. The facility is located in an industrial area. There are no residents within the facility boundary.

The CC&P site runoff flows to an unnamed County drainage ditch which flows south to Sims Bayou and from there ultimately to Galveston Bay. As stated previously, the groundwater flow in the area of the facility appears to be towards the southeast. The prevailing wind direction is to the northwest at an annual mean speed of 10 miles per hour with seasonal patterns. Generally, the wind in the area is from the southeast in the summer and from the north in the winter (Ref. 17).

#### 4.0 DESCRIPTION OF SOLID WASTE MANAGEMENT UNITS

This section presents detailed descriptions of each solid waste management unit (SWMU) identified during the PR and VSI. These descriptions encompass unit description, dates of operation, wastes managed, release controls, history of releases, and release potential to soil/groundwater, surface water, and air, plus the potential to generate subsurface gas.

#### 4.1 SWMU #1 - Wastewater Impoundment (Photo 1)

##### 4.1.1 Information Summary

Unit Description: This unit is also known as the Settling Pond and the Equalization Basin. This unit is a closed surface impoundment and is located in the southeast corner of the CC&P production facility, 4 feet west of an unnamed County drainage ditch and east of the WWTF Enclosed Steel Storage Tanks #1 and #2 (SWMUs #11 and #12). The unit was approximately 100 feet wide, 382 feet long and 5 feet, 8.6 inches deep and had a capacity of 1.25 million gallons (Ref. 20). The unit was an earthen structure with a raised dike surrounding the impoundment. The unit was part of the wastewater treatment process prior to 1983. The unit received wastewater from the Wastewater Collection Sump (SWMU #3) and discharged the wastewater to the Treatment Pits (SWMU #8). The sludges were sent to Sludge Dewatering Belt Press (SWMU #9) (Ref. 36).

Magna sold the plant to Chardonol in December, 1983, however, Magna retained the surface impoundment (Ref. 37) following the sale. Magna did not implement a regular RCRA groundwater monitoring program, but in early 1984 submitted a groundwater monitoring waiver demonstration to the TWC. Magna also submitted a closure plan for the unit at the same time. TWC notified Magna to modify the closure plan to include installation of three groundwater monitoring wells and conduct analyses for certain parameters for a period of one year following the installation of these wells. In June of 1984 Magna was able to successfully reclassify the Wastewater Impoundment (SWMU #1) sludges from Class I to Class II industrial solid waste. However, the reclassification did not apply to the Wastewater Impoundment (SWMU #1), which itself remained a Class I hazardous waste management unit. Magna was required to clean close the unit.

The unit was eventually closed in 1985. During closure, approximately 200 five thousand gallon tank trucks of fluid sludge were removed from the unit for off-site disposal (Ref. 3). The Wastewater Impoundment (SWMU #1) was cleaned to background levels (less than 50 ppb) for xylene, toluene and mercury (Ref. 3). The unit was filled with compacted clay, graded for drainage and capped with 2 feet of clay having a compacted permeability of less than  $1 \times 10^{-7}$  cm/sec. The unit is now covered with vegetation (Ref. 3). However, TWC has not received a certification of clean closure for the unit from a registered certified professional engineer. In addition, TWC, as a result of a comprehensive ground-water monitoring evaluation (CME) in 1987, determined that the monitoring wells were not adequately located down gradient of the unit, and, therefore, that the wells may not be able to detect the edge and center of the plume where significant concentrations of the contaminants may be present (Ref. 20).

Dates of Operation: This surface impoundment was constructed in the 1950s and began receiving waste shortly thereafter. The unit is no longer active. In 1982, the Wastewater Impoundment (SWMU #1) was replaced by two 250,000 gallon tanks; WWTF Enclosed Steel Storage Tank #1 and #2 (SWMUs #11 and 12). Wastes were no longer placed in the unit after 1983 and the unit was closed in 1985 (Ref. 20).

Wastes Managed: The surface impoundment was used to store wastewater after it had been through the Wastewater Collection Sump (SWMU #3), and oil skimmed from the surface of this sump, prior to treatment in the Treatment Pits (SWMU #8). This unit managed wastes generated by Aquaness, Milchem, and Magna. Wastes consisted of liquid process wastewater containing F003-F005 solvents, and xylene, toluene and mercury (Ref. 3). The sludges in the unit have been reclassified by the TWC from Class I to Class II non-hazardous. The sludges contained detectable levels of xylene, toluene, and mercury (Ref. 3).

Release Controls: The impoundment was surrounded by an earthen dike with 1.2 feet of freeboard. The impoundment had an earthen compacted clay liner, but does not possess leachate control mechanisms. Waste entered the impoundment by process sewer pipes (Ref. 3).

History of Releases: Groundwater samples collected for a CME by TWC in 1987 show the presence of barium, acid esters, butyl myristate, 2-H-azepine-2-one, triethyl phosphate, hexadecanoic acid and nonyl phenol in the monitor wells all in the low ppb range (Ref. 20). There are no groundwater sampling results in the files after 1987 (Ref. 35).

#### 4.1.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is high due to the nature of operations, the type of waste handled, the presence of a shallow water table in the area, and contamination noted in groundwater monitoring wells in 1987.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water in the past is high due to the lack of runoff controls the unit's proximity to a nearby drainage ditch, and an observed release in 1985.

The potential for release of hazardous waste or hazardous constituents to surface water in the present is low because the unit is no longer active.

Air: The potential for release of hazardous waste or hazardous constituents to air in the past was high due to the fact

that the impoundment was open to the atmosphere, and that volatile organics were known to be managed in the unit.

The potential for release of hazardous waste or hazardous constituents to air, in the present, is low due to the unit's inactive status, and the presence of a cap.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed at the unit and removal of all the wastes from the unit during closure.



#### 4.2 SWMU #2 - Black Tar Area (Photo 2)

##### 4.2.1 Information Summary

Unit Description: This unit is located just south of the closed Wastewater Impoundment (SWMU #1). It consisted of an unknown volume of buried black tarry material approximately 2-4 feet below surface. The material was discovered during the closure of the Wastewater Impoundment (SWMU #1) in 1984 (Ref. 3). The facility decided to remove the tar and any visually contaminated soil in the area during December 1984 and February 1985. The soil was removed until the soil test results indicated that xylene levels were less than 0.01 ppm (Ref. 3).

Dates of Operation: This unit was discovered in 1984 and is not currently active. The material was removed during the earthwork associated with closing the Wastewater Impoundment (SWMU #1) during December 1984 and February 1985 (Ref. 35).

Wastes Managed: This unit consisted of an unknown volume of buried black tarry material. A sample of the tar was tested to determine the chemical composition. The tar had less than 0.001 ppm of benzene, toluene and phenol, 0.006 ppm of mercury and 116.8 ppm of xylene (Ref. 3).

Release Controls: The unit was located on the soil and there were no known release controls (Ref. 35).

History of Releases: Analytical test results of the soil after removal indicate no contaminants remain above detection limits (Ref. 3).

##### 4.2.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil in the past is high due to the confirmed soil contamination. The potential for release of hazardous waste or constituents to soil, in the present is low because the material was removed until no contamination was found.

The potential for release of hazardous waste or hazardous constituents to groundwater, both past and ongoing, is moderate due to the location of the unit on soil, and past confirmed soil contamination.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing is low, due to the nature of the waste constituting the unit.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the wastes managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, because the waste was removed.

#### 4.3 SWMU #3 - Wastewater Collection Sump (Photo 3)

##### 4.3.1 Information Summary

Unit Description: This unit is located southeast of the main production area, south of the Metal Catch Trays at Tank Car Railside (SWMU #22) and is adjacent to the Skimmed Oil Storage Tank (SWMU #4). The unit is a below grade concrete sump with a rope and belt oil type skimmer. The unit is approximately 6 feet wide, 12 feet long and 4 feet deep. The sump has two cells separated by a 4 inch concrete wall. Each cell is approximately 6 feet long, 6 feet wide and 4 feet deep. The top of the sump is open to the atmosphere and is covered by steel grating. A raised concrete curb surrounds the sump area. A metal roof extends over the sump. The area surrounding the sump is grassy. This unit receives wastewater from the manufacturing process. The skimmed oil was sent to the Skimmed Oil Storage Tank (SWMU #4), where it was stored. In 1981, the skimmer was removed and the Skimmed Oil Storage Tank (SWMU #4) was no longer used because there was a change in the process; diesel fuels were no longer used as a solvent in the process. Prior to 1983, this unit discharged the wastewater to the Wastewater Impoundment (SWMU #1). After 1983, the unit discharged wastewater to WWTF Enclosed Steel Storage Tanks #1 and #2 (SWMUs #11 and #12) by above-ground piping, which exits from the top of the sump (Ref. 35).

Dates of Operation: This unit was constructed in the 1950s and is currently active. The oil skimmer was removed in 1981 (Ref. 35).

Wastes Managed: This unit manages oily process wastewater. Oil was separated from the wastewater by a rope and belt type skimmer until 1981 (Ref. 35).

Release Controls: The sump is concrete and is below grade. A raised concrete curb surrounds the sump (Ref. 35).

History of Releases: No releases are known to have occurred and no visual evidence of releases from the unit was noted during the VSI. However, the integrity of the unit could not be ascertained during the VSI conducted on August 29, 1991 due to the presence of liquids (Ref. 35). Due to the nature of the materials managed, the unit integrity is expected to be intact, but this could not be confirmed.

##### 4.3.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the design of the unit, but this could not be confirmed.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's design and location.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.

#### 4.4 SWMU #4 - Skimmed Oil Storage Tank (Photo 4)

##### 4.4.1 Information Summary

Unit Description: This above-ground tank is adjacent to the Wastewater Collection Sump (SWMU #3) and is 90 feet southeast of the main production facility and 100 feet northwest of the closed Wastewater Impoundment (SWMU #1). This unit consists of a 4000-gallon vertical steel tank for the storage of skimmed oils, although the unit is currently inactive. The tank is on top of a concrete floor and is surrounded by a concrete curb. This curbed area drains to the adjacent Wastewater Collection Sump (SWMU #3). Prior to 1981, this unit received skimmed oil from the Wastewater Collection Sump (SWMU #3) (Ref. 33). Oils were temporarily stored in this tank prior to off-site disposal. The Skimmed Oil Storage Tank (SWMU #4) was not used after 1981 because there was a change in the process and diesel fuel (responsible for the oil sheen) was no longer used as a solvent in the process (Ref. 35).

Dates of Operation: The unit was constructed in the 1950s and operated from that time until 1981. The unit is on-site but is currently inactive (Ref. 35).

Wastes Managed: This unit stored skimmed oil (Ref. 35).

Release Controls: The tank is located on a concrete pad and a 4-inch raised concrete curb surrounds the tank (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991.

##### 4.4.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the above-ground location of the tank on a curbed concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's design and location on a curbed concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the closed topped nature of the unit.

Subsurface Gas: There is no potential for the generation of subsurface gas, both the past and ongoing, due to the nature of the wastes managed at the unit.

#### 4.5 SWMU #5 - Old Drum Storage Area at WWTF (Photo 5)

##### 4.5.1 Information Summary

Unit Description: This above-ground, inactive unit was located north of the Treatment Pits (SWMU #8), at the current location of the WWTF Sludge Hopper (SWMU #23). The unit contained dried sludge generated by the Sludge Dewatering Belt Press (SWMU #9) machine. The sludge was temporarily stored here prior to off-site disposal. After 1982, the dried sludge was stored in WWTF Sludge Hopper (SWMU #23). After the unit was deactivated, the drums were cleaned and sent off-site (Ref. 35).

Dates of Operation: This unit was in operation from the 1950s until 1982. The unit is currently inactive (Ref 35).

Wastes Managed: This unit received dried sludge produced by the Sludge Dewatering Belt Press (SWMU #9). The sludges have been classified non-hazardous by the TWC (Ref. 35).

Release Controls: The unit was located on a concrete pad (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991.

##### 4.5.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit was on a concrete pad, and is no longer present.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit was on a concrete pad, and is no longer present.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the location on a concrete pad, the nature of the wastes managed at the unit, and the fact that the unit is no longer present.

#### 4.6 SWMU #6 - Dumpster for Filter Press Cake (Photo 6)

##### 4.6.1 Information Summary

Unit Description: This above-ground dumpster is located south of the warehouse production facility. The unit consists of an open-topped 20 cubic yard metal dumpster resting on a concrete pad. The unit contains dried filter press cake generated by the glass lined unit. The dried filter press cake is first transferred to the Dumpsters at Glass-Lined Unit (SWMU #20), and then is transferred to this unit for storage prior to off-site disposal. During the VSI, this unit was covered by a plastic sheet (Ref. 35).

Dates of Operation: This unit began operation in 1982 and is currently active (Ref. 35).

Wastes Managed: This unit receives non-hazardous dried filter press generated in the glass lined units (Ref. 35).

Release Controls: The unit rests on a concrete pad (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991.

##### 4.6.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the location on a concrete pad and the nature of the wastes managed at the unit.

#### 4.7 SWMU #7 - Wastewater Holding Tank (Photo 7)

##### 4.7.1 Information Summary

Unit Description: This above-ground unit is located southeast of the main production facility, just west of the Treatment Pits (SWMU #8), of the closed Wastewater Impoundment (SWMU #1). The unit consists of one 6000-gallon enclosed wastewater holding tank labeled "T-4 Acid Waste Water." The tank is constructed of steel and is located on a 6 inch concrete pad. Originally, this tank was used for the storage of coagulants used for treatment in the Treatment Pits (SWMU #8), but this treatment did not work so the facility went back to using alum and sodium hydroxide. This tank, along with two other tanks located north of it, were replaced by two alum tanks and one sodium hydroxide tank in 1983. The unit now temporarily stores non-hazardous process wastewater prior to disposal off-site. The wastewater has been tested and has been classified as non-hazardous waste by the TWC (Ref. 35).

Dates of Operation: This unit was constructed in 1981. The unit is currently active (Ref. 35). In the past, the unit was used to store coagulants.

Wastes Managed: This unit is used for the temporary storage of non-hazardous process wastewater (Ref. 35).

Release Controls: The unit is an enclosed steel tank located on a concrete pad (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991.

##### 4.7.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the type of waste handled (non-hazardous liquid waste) and above-ground location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the above-ground location on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the close-topped nature of the tank.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed at the unit and the above-ground location of the tank on a concrete pad.



#### 4.8 SWMU #8 - Treatment Pits (Photos 8 and 8.1)

##### 4.8.1 Information Summary

Unit Description: This unit is located immediately east of the Wastewater Holding Tank (SWMU #7), 50 feet north of the WWTF Enclosed Tanks #1 and #2 (SWMUs #11 and #12), and 50 feet west of the closed Wastewater Impoundment (SWMU #1). The unit consists of seven rectangular concrete pits. Each pit is 80 feet long, 12 feet wide and 4 feet deep. This unit is partially above-ground and partially in-ground. These pits are covered by a metal roof, but otherwise are open to the atmosphere. This unit is used to pretreat wastewater by flocculation and precipitation prior to the wastewater being discharged to the POTW, under City of Houston Permit No. 20684. The sludges generated are collected by the Sludge Dewatering Belt Press (SWMU #9). Prior to 1983, the unit received wastewater from the Wastewater Impoundment (SWMU #1), and since 1983, the unit receives wastewater from the WWTF Storage Tanks #1 and #2 (SWMUs #11 and #12).

Dates of Operation: This unit was constructed in the 1950s and it is currently active (Ref. 35).

Wastes Managed: The unit is designed to pretreat wastewater by precipitation and flocculation, using alum and sodium hydroxide prior to its discharge to a POTW. Non-hazardous sludges are produced during pretreatment activities. The sludges have been classified non-hazardous by the TWC (Ref. 35).

Release Controls: The release controls at this unit consist of the rectangular concrete pit located on the west side of the unit, which also holds the wastewater. This pit extends the entire length of the unit. There is no secondary containment around the unit (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991. However, the integrity of the unit could not be ascertained during the VSI conducted on August 29, 1991 due to the presence of liquids (Ref. 35). Due to the nature of the materials managed, the unit integrity is expected to be intact, but this could not be confirmed.

##### 4.8.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is expected to be low, due to the nature of the materials managed, and the design of the unit but this could not be confirmed.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the design of the unit.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is moderate due to the open nature of the operation.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed at the unit.

#### 4.9 SWMU #9 - Sludge Dewatering Belt Press (Photo 9)

##### 4.9.1 Information Summary

Unit Description: This above-ground unit is located above one of the seven Treatment Pits (SWMU #8), in the northeast corner of the WWTF. The unit has a conveyor belt with a bucket that goes into the pits and removes the sludge. A 3.5 to 4 foot wide belt press machine mechanically dewateres the sludge. After the water is removed from the sludge, a mostly dry non-hazardous sludge is produced; this sludge is then collected in a WWTF Sludge Hopper (SWMU #23) and then sent off-site for disposal. The sludge effluent is routed back to the Treatment Pits (SWMU #8) (Ref. 35).

Dates of Operation: This unit was constructed in the 1950s. The unit is presently active, but was closed down for repairs during the VSI on August 29, 1991 (Ref. 35).

Wastes Managed: This unit manages non-hazardous sludges produced by mechanically dewatering the sludge produced during the pretreatment of wastewater at the WWTF. The sludges have been classified non-hazardous by the TWC (Ref. 35).

Release Controls: This unit is partially underlain by a concrete pad (Ref. 35).

History of Releases: No releases are known to have occurred and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.9.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's design, the nature of the waste management activities and the location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste management activities and the unit's design.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed at the unit.

#### 4.10 SWMU #10 - WWTF Piping/Chemical Sewer Conduits (Photo 10 and 10.1)

##### 4.10.1 Information Summary

Unit Description: These pipes and troughs are both underground and aboveground, and are located between the process areas and the wastewater treatment facility. The unit consists of concrete troughs (covered by metal grating) and lined piping which collect spills throughout the plant and discharge the wastewater to the WWTF (Ref. 35).

Dates of Operation: This unit began operation in 1962 and is currently active.

Wastes Managed: This unit manages spilled fluids from various parts of the plant. Spilled fluids are sent to the WWTF.

Release Controls: There are no known release controls; this unit is itself a release control.

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991. However, the integrity of the unit could not be determined due to its below-grade construction, the metal grating, and safety considerations.

##### 4.10.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is expected to be low, due to the construction of the unit.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's construction.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the units design.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the waste managed at the unit.

#### 4.11 SWMU #11 - WWTF Enclosed Tank #1 (Photo 11)

##### 4.11.1 Information Summary

Unit Description: This above-ground tank is located south of the Treatment Pits (SWMU #8). This unit consists of an enclosed steel tank with a capacity of 250,000 gallons. The tank is surrounded by an earthen dike. The tank stores wastewater from the Wastewater Collection Sump (SWMU #3) prior to treatment at the Treatment Pits (SWMU #8). Wastewater enters the tank from aboveground pipes. Either this tank or WWTF Enclosed Tank #2 (SWMU #12) is in use at any given time. If this tank is not in use, then it is used as an emergency tank for the storm sewer system or for additional storage for process wastewater on an as needed basis. Prior to 1983, the Wastewater Impoundment (SWMU #1) received the wastewater from the Wastewater Collection Sump (SWMU #3).

Dates of Operation: The tank was constructed in 1983 and is currently active. It is usually not in use when WWTF Enclosed Tank #2 (SWMU #12) is being used.

Wastes Managed: This unit receives untreated wastewater from plant processes. Wastewater is temporarily stored in this tank prior to treatment in the Treatment Pits (SWMU #8).

Release Controls: This tank and WWTF Enclosed Tank #2 (SWMU #12) are surrounded by an earthen dike. Water which collects inside the earthen dike is collected by a pump, located in the northeast corner of the diked area, which drains the area.

History of Releases: No releases are known to have occurred from the unit, and no visual evidence of releases from the unit were observed during the VSI conducted on August 29, 1991.

##### 4.11.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the above-ground location of the unit, and the fact that it is surrounded by an earthen dike.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the earthen dike surrounding the unit.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the close-topped nature of the tank.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the above-ground location of the unit.

#### 4.12 SWMU #12 - WWTF Enclosed Tank #2 (Photo 12)

##### 4.12.1 Information Summary

Unit Description: This above-ground tank is located south of the Treatment Pits (SWMU #8). This unit consists of an enclosed steel tank with a capacity of 250,000 gallons. The tank is surrounded by an earthen dike. The tank stores wastewater from the Wastewater Collection Sump (SWMU #3) prior to treatment at the Treatment Pits (SWMU #8). Wastewater enters the tank from aboveground pipes. Either this tank or WWTF Enclosed Tank #1 (SWMU #11) is in use at any given time. If this tank is not in use, then it is used as an emergency tank for the storm sewer system or for additional storage for process wastewater on an as needed basis. Prior to 1983, the Wastewater Impoundment (SWMU #1) received the wastewater from the Wastewater Collection Sump (SWMU #3) (Ref. 35).

Dates of Operation: The tank was constructed in 1983 and is currently active (Ref. 35). It is usually not in use when WWTF Enclosed Tank #1 (SWMU #11) is being used.

Wastes Managed: This unit receives untreated wastewater from plant processes. Wastewater is temporarily stored in this tank prior to treatment in the WWTF (Ref. 35).

Release Controls: This tank and WWTF Enclosed Tank #1 (SWMU #11) are surrounded by an earthen dike. Water which collects inside the earthen dike is collected by a pump, located in the northeast corner of the diked area, which drains the area (Ref. 35).

History of Releases: No releases are known to have occurred from the unit, and no visual evidence of releases from the unit were observed during the VSI conducted on August 29, 1991.

##### 4.12.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the above-ground location of the unit, and the fact that it is surrounded by an earthen dike.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the earthen dike surrounding the unit.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the close-topped nature of the tank.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the above-ground location of the unit.

#### 4.13 SWMU #13 - T-1011 Storage Tank (Photo 13)

##### 4.13.1 Information Summary

Unit Description: This above-ground unit consists of one 8700-gallon liquid waste storage tank (T-1011), which is currently used to manage process wastewaters. The unit is located south of the autoclave building and northwest of the WWTF and is situated among ten other similar sized and shaped tanks used for bulk product storage. This tank is labeled "Waste Water." Tank T-1011 is positioned on a concrete base which in turn sits upon a concrete slab surrounded by four-foot high concrete walls. Floor drains within this area discharge to the onsite WWTF. This tank receives reaction wastewater from the ester kettle; the wastewater is disposed off-site (Ref. 35).

Dates of Operation: This unit began operation in 1978 and is currently active (Ref. 35).

Wastes Managed: The unit stores process wastewaters resulting from the production activities at the ester kettle (Ref. 35).

Release Controls: The unit is located on a concrete floor and is surrounded by a four-foot high concrete walls. The area inside the walls drains to the WWTF (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.13.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the location of the tank on a concrete pad, and secondary containment provided by concrete walls and the presence of drains designed to collect and convey any seepage or spillage.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the location of the tank on a concrete pad, and secondary containment provided by concrete walls and the presence of drains designed to collect and convey any seepage or spillage.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the of the materials being handled.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the materials being handled.



#### 4.14 SWMU #14 - Waste Storage Area in Laboratory (Photo 14)

##### 4.14.1 Information Summary

Unit Description: This unit consists of the waste storage area in the plant QA/QC laboratory, which is located in the Plant Office area. The Plant Office area is located in the eastern portion of the facility north of the Drum Storage Area (SWMU #26). The lab stores small amounts of chemicals and laboratory supplies for conducting QA/QC testing of the various plant processes. Small amounts of wastes are generated during these tests. Wastes are stored in the laboratory in 5-gallon labpack containers and are periodically transferred to a 55-gallon drum located outside of the building - Container Storage Outside Laboratory (SWMU #30) and then to the Drum Storage Area (SWMU #26). Sinks in the laboratory drain to the sanitary sewer system. No laboratory wastes are disposed via these drains (Ref. 35).

Dates of Operation: This unit began operation in 1962 and is currently active.

Wastes Managed: This unit stores small amount of chemicals and laboratory supplies for conducting QA/QC testing of the various processes located at the facility. Small amounts of wastes are generated during these tests. Wastes are stored in the laboratory in 5-gallon labpack containers and are periodically transferred to 55-gallon drums located outside of the building - Container Storage Area Outside Laboratory (SWMU #30).

Release Controls: The building is enclosed and has a concrete floor.

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.14.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is inside a building and is located upon a concrete floor.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is inside a building.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is inside a building.

#### 4.15 SWMU #15 - Waste Storage Area in Maintenance Shop (Photo 15)

##### 4.15.1 Information Summary

Unit Description: This unit is the waste storage area in the Maintenance Shop which is located south of the Supply Building. The unit is in an enclosed and roofed metal building with a concrete floor. The floor does not possess floor drains. Used oils and chemicals are stored inside the building in drums and tote bins which are later moved outside to the Container Storage Outside Maintenance Shop (SWMU #16). Waste drums and the tote bins do not have a specific location in the Maintenance Shop.

Dates of Operation: This unit began operation in 1981 and is currently active (Ref. 35).

Wastes Managed: This unit manages used oils and cleaning chemicals (Ref. 35).

Release Controls: The unit is located in the Maintenance Shop.

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.15.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is inside a building and is located upon a concrete floor.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is inside a building.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the unit's low release potential to soil and groundwater.

4.16 SWMU #16 - Waste Storage Outside Maintenance Shop (Photos 16 and 16.1)

4.16.1 Information Summary

Unit Description: This unit is a container storage area. This unit manages used oils and cleaning chemicals generated from various activities conducted in the Maintenance Shop. These wastes are generated in the Maintenance Shop and are first stored in the Waste Storage Area in Maintenance Shop (SWMU #15), and then are transferred outside into drums and tote bins. The unit consists of a 400-gallon tote bin and several drums stored on the south side of the Maintenance Shop on a concrete pad. The tote bin is used for the temporary storage of used oil prior to off-site disposal. This unit is approximately 10 feet long and 6 feet wide. The cleaning chemicals are stored in closed drums which are on wooden pallets. The used oil is stored in open steel tote bins. A concrete pad underlies the unit.

Dates of Operation: This unit began operation in 1981 and is currently active (Ref. 48).

Wastes Managed: This unit manages used oils and cleaning chemicals (used paint solvent) (Ref. 35).

Release Controls: Drums and tote bins are stored outdoors adjacent to the Maintenance shop on a concrete pad. Drums are stored on wooden pallets.

History of Releases: No releases are known to have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

4.16.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to unit's location on a concrete pad.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete pad, far from surface waters.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the drums and tote bins are close-topped.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the unit's location on a concrete pad.

#### 4.17 SWMU #17 - Tote Bins at Autoclave Units (Photo 17)

##### 4.17.1 Information Summary

Unit Description: This unit is a waste storage area. This unit consists of several tote bins which are used to collect waste product, off specification raw materials and the beginning and end runs of the process at the autoclave units. The bins are located in a large, enclosed roofed metal building situated in the central portion of the facility. These bins do not have any specific location within the building. The building has a concrete floor with floor and trench process sewer drains surrounding the area. These sewer drains discharge to the on-site WWTF. Entrances/exits within the building are ramped to prevent runoff from process upsets, spillage, or leaks. Once the tote bins are filled with waste materials, they are closed and sent to Container Storage Outside Process Areas (SWMU #31) (Ref. 35).

Dates of Operation: This unit began operation in 1978 and is currently active (Ref. 35).

Wastes Managed: This unit manages wastes resulting from the processing (reacting) of raw materials such as nonyl phenol with ethylene oxide or propylene oxide. Most of the wastes and solvents derived from this process are recycled, however, small amounts of waste that are intended for discard are collected in tote bins (Ref. 35).

Release Controls: The unit is located on a concrete floor inside the building. The tote bins are closed. The building contains floor and trench process sewer drains. These sewer drains discharge to the on-site WWTF (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.17.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is located inside a building on a concrete floor.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is located inside a building on a concrete floor.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is located inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the unit's low release potential to soil and groundwater.

#### 4.18 SWMU #18 - Tote Bins at Ester Kettle Unit 1B (Photo 18)

##### 4.18.1 Information Summary

Unit Description: This unit is a waste storage area. This unit consists of several tote bins which are used to collect waste products and other production ends and bottoms resulting from processes conducted in the ester kettle unit 1B. This unit is located immediately north of the Tote Bins at Autoclave Units (SWMU #17). Once the tote bins are filled with waste materials, they are closed and taken from the area to the Container Storage Outside Process Areas (SWMU #31). The tote bins do not have any specific location in the building. The ester kettle consists of a reactor and tanks used for sulfonation and esterification. Feedstocks such as dodecylbenzylsulfonic acid, tall fatty acid, diethylene tetramine methanol, and aminoethyl ethanol amine are pumped into the reactor from either storage tanks or drums (Ref. 35).

Dates of Operation: The unit began operation in 1978 and is currently active (Ref. 35).

Wastes Managed: This unit manages process wastes generated during the esterification and sulfonation of unsaturated polyester resins (Ref. 35).

Release Controls: The unit is located inside a building with a concrete floor and raised concrete curbs. This area also has floor and trench process sewer drains which discharge to the on-site WWTF (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.18.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is located inside a building on a concrete floor with raised concrete curbs.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is located inside a building, on a concrete floor with raised concrete curbs.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is located inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due the unit's low release potential to soil and groundwater.

#### 4.19 SWMU #19 - Waste Storage Area at Glass Lined Unit (Photo 19)

##### 4.19.1 Information Summary

Unit Description: This unit is a waste storage area. This unit consists of several 5-gallon carboys which are used to collect waste product and other ends and bottoms resulting from processes conducted in the glass lined unit. The unit is located south of the Old Warehouse and north of the autoclave building. The unit is inside a building with a concrete floor. The area around the unit is surrounded by a raised concrete curb. Once the carboys are filled with waste materials, they are closed and taken from the area to tote bins in the Container Storage Outside Process Areas (SWMU #31) (Ref. 35).

Dates of Operation: This unit began operation in 1982 and is currently active (Ref. 35).

Wastes Managed: This unit manages process wastes resulting from reactions within the glass lined reactor (Ref. 35).

Release Controls: This unit is located inside a building with a concrete floor. A raised concrete curb surrounds the building.

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.19.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is located inside a building on a concrete floor with raised curbs.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is located inside a building on a concrete floor with raised curbs.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is located inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due the unit's low release potential to soil and groundwater.



#### 4.20 SWMU #20 - Dumpsters at Glass Lined Unit (Photo 20)

##### 4.20.1 Information Summary

Unit Description: This unit consists of several dumpster bins which are used to collect non-hazardous filter press cake from the glass lined unit. The unit is located south of the Old Warehouse and north of the autoclave building. The dumpsters are not located at any specific location in the building. The unit is inside a building with a concrete floor. The area around the unit is surrounded by a raised concrete curb. Once the dumpsters are filled with waste materials, they are taken from the area to the Dumpster for Filter Press Cake (SWMU #6) (Ref. 35).

Dates of Operation: This unit began operation in 1982 and is currently active (Ref. 35).

Wastes Managed: This unit manages filter press cake resulting from the glass lined unit (Ref. 35).

Release Controls: This unit is located inside a building with a concrete floor. A raised concrete curb surrounds the building (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.20.2 Release Potential

Soil/Groundwater: The potential for releases of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is located inside a building on a concrete floor with raised curbs.

Surface Water: The potential for releases of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is located inside a building on a concrete floor with raised curbs.

Air: The potential for releases of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is located inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due the unit's low release potential to soil and groundwater.

#### 4.21 SWMU #21 - Tote Bins at Finished Compound (Photo 21) Blending Unit

##### 4.21.1 Information Summary

Unit Description: This unit is a waste storage area. This unit is located south of the Old Warehouse and adjacent to the waste at the Glass Lined Unit (SWMU #19). This unit consists of several tote bins which are not located at any specific location in the building. The unit is inside a building with a concrete floor. The area around the unit is surrounded by a raised concrete curb. Once the tote bins are filled with waste materials, they are closed and taken from the area to the Container Storage Outside Process Areas (SWMU #31) (Ref. 35). The area has been engineered to drain to the WWTF. Product waste is stored in tote bins for later recycling (Ref. 35).

Dates of Operation: The blending unit was originally built in 1962 but was demolished in 1988. In 1988, a new unit was constructed on the same site and is currently active.

Wastes Managed: This unit manages process chemicals and product waste (Ref. 35).

Release Controls: The unit is inside a building with a concrete floor. Area drainage is to the WWTF (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.21.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's design, and the unit's inside location.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's design and location inside a building.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the unit is inside a building.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, based on the nature of the wastes managed, and location inside a building.

#### 4.22 SWMU #22 - Metal Catch Trays at Tank Car Railside (Photo 22)

##### 4.22.1 Information Summary

Unit Description: This unit is located in the western portion of the plant, north of Treatment Pits (SWMU #8) and east of the Tote Bins at Autoclaves Units (SWMU #16). The unit underlies a tank car unloading area with a metal roof covering the area. Metal catch trays are located between the rails and above the ties. Drips and spills from tank car loading/unloading are contained by the metal catch basins and are discharged to the WWTF. The metal trays were installed in 1989. Prior to 1989, the area was underlain by concrete, and prior to that, asphalt, and, the area drained to a sump (Ref. 35) which is no longer in operation.

Dates of Operation: This unit began operation in 1989 and is currently active (Ref. 35).

Wastes Managed: This unit manages drips and spills of raw products and materials from the tank car loading/unloading process (Ref. 35).

Release Controls: This unit is made of metal (Ref. 35).

History of Releases: During the VSI conducted on August 29, 1991, staining was observed around the unit on the concrete. During the VSI, one tank car was parked at the end of the track where there is no metal tray.

##### 4.22.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is moderate due to the observed staining, and the nature of the wastes managed.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the in-ground location of the unit, and the fact that there is no adjacent surface water.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of wastes managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the waste managed and unit containment structures.

#### 4.23 SWMU #23 - WWTF Sludge Hopper (Photos 23 and 23.1)

##### 4.23.1 Information Summary

Unit Description: This above-ground unit is located north of the Treatment Pits (SWMU #8). The unit consists of an open topped 20 cubic yard metal dumpster resting on a concrete pad. The unit contains dried sludge generated by the Sludge Dewatering Belt Press (SWMU #9) machine. The sludge is temporarily stored here prior to off-site disposal. Prior to 1982, the dried sludge was stored in drums at Old Drum Storage Area at WWTF (SWMU #5).

Dates of Operation: This unit began operation in 1982 and is currently active.

Wastes Managed: This unit receives dried sludge produced by the Sludge Dewatering Belt Press (SWMU #9). The sludges have been classified non-hazardous by the TWC.

Release Controls: The unit rests on a concrete pad.

History of Releases: No known releases have occurred from this unit and no visual evidence of releases was noted during the VSI conducted on August 29, 1991.

##### 4.23.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low because the unit is on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low because the unit is on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the location on a concrete pad and the nature of the wastes managed at the unit.

#### 4.24 SWMU #24 - Old Bone Yard (Photo 24)

##### 4.24.1 Information Summary

Unit Description: This unit no longer exists. It was located in the southern portion of the plant. It is now covered by the concrete slab used for the Drum Staging Area #2 (SWMU #27). The unit was a landfill used by the plant for disposal of non-hazardous trash, construction debris and crushed drums. The size of this unit is not known. The disposal of crushed drums was a one time event. The unit was closed and materials removed in 1980 (Ref. 35).

Dates of Operation: This unit began operation in the 1950s and was closed and removed in 1980 (Ref. 35).

Wastes Managed: This unit managed non-hazardous trash, debris, and crushed drums (Ref. 35).

Release Controls: This unit had no known release controls.

History of Releases: No known releases occurred from the unit. This unit has been covered by a concrete slab and thus this unit could not be observed during the VSI conducted on August 29, 1991.

##### 4.24.2 Release Potential

Soil/Groundwater: The potential for a past release of hazardous waste or hazardous constituents to soil is high due to the nature of the unit. The potential for present release is low due to the removal of the unit.

The potential for release of hazardous waste or hazardous constituents to groundwater, both past and ongoing, is high because the unit did not have any release controls.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the nature of the unit when it was active, and due to the subsequent removal of the unit.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of wastes managed and the removal of the unit.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of wastes managed and the removal of the unit.

#### 4.25 SWMU #25 - Drum Staging Area #1 (Photo 25)

##### 4.25.1 Information Summary

Unit Description: This unit is an outdoor open area along the east fence line in the northeastern portion of the property northeast of the Treatment Pits (SWMU #8). 55-gallon drums containing non-hazardous wastes are stored at this unit for less than two weeks. These drums are stored on pallets or individually on a concrete floor prior to off-site disposal. The unit is approximately 20 feet by 50 feet (Ref. 35).

Dates of Operation: This unit began operation in 1988 and is currently active.

Wastes Managed: This unit acts as a temporary storage area for 55-gallon drums containing non-hazardous wastes (Ref. 35).

Release Controls: The unit is located on a concrete pad (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.25.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.

#### 4.26 SWMU #26 - Drum Storage Area (Photo 26)

##### 4.26.1 Information Summary

Unit Description: This unit is an outdoor concrete floored drum storage area located south of the plant office and north of the Supply Building. This above-ground unit is approximately 80 feet long and 65 feet wide. This area is use as a temporary storage area for 55-gallon drums containing products, lab waste, and recyclable materials. This unit is located on a concrete pad with a concrete berm. The drums are closed and stored on pallets (Ref. 35).

Dates of Operation: This unit began operation in 1978 and is currently active (Ref. 35).

Wastes Managed: This area is used as a temporary storage area for 55-gallon drums containing products, lab waste, and recyclable materials (Ref. 35).

Release Controls: This unit is located on a concrete pad with a concrete berm. Drainage is to the stormwater system. (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.26.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a bermed concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.

#### 4.27 SWMU #27 - Drum Staging Area #2 (Photo 27 and 27.1)

##### 4.27.1 Information Summary

Unit Description: This unit is located in the southern portion of the plant, west of the Treatment Pits (SWMU #8). The unit consists of an outdoor concrete pad used as a drum and tote bin staging area. It is approximately 200 feet long and 135 feet wide. The unit is used for the temporary storage of non-hazardous sludges and hazardous liquids generated from the process units in 55-gallon drums and 400-gallon (closed) tote bins prior to off-site disposal. The drums are stored on wooden pallets. The concrete pad was constructed at the location of the Old Bone Yard (SWMU #24) (Ref. 35).

Dates of Operation: This unit began operation in 1978 and is currently active (Ref. 35).

Wastes Managed: The unit is used for the temporary storage of nonhazardous sludges and liquids in 55-gallon drums and 400-gallon closed tote bins (Ref. 35).

Release Controls: The unit is located on a concrete pad (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.27.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.



#### 4.28 SWMU #28 - Sewer Effluent Sump (Photo 28)

##### 4.28.1 Information Summary

Unit Description: This unit is located in the northeast corner of the plant, northeast of the Security Office and the New Warehouse. The unit is a concrete lined sump approximately four feet across with an open metal top. A pump is situated on the metal cover. This unit receives treated wastewater from the Sewer Effluent Sump at Treatment Pits (SWMU #29). The sump discharges pretreated effluent to the City of Houston POTW (Ref. 35).

Dates of Operation: This unit began operation in approximately the 1950s and is currently active (Ref. 35).

Wastes Managed: This unit manages treated effluent (Ref. 35).

Release Controls: The unit is a sump constructed of concrete (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991. However, the integrity of the unit could not be ascertained during the VSI conducted on August 29, 1991, due to the presence of liquids (Ref. 35). Due to the nature of the materials managed, the unit integrity is believed to be intact, but this could not be confirmed.

##### 4.28.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is expected to be low, due to the construction of the unit, but this could not be confirmed.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the below ground location of the unit and the nature of the waste managed.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the nature of the waste managed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the waste managed at the unit.

#### 4.29 SWMU #29 Sewer Effluent Sump at Treatment Pits (Photo 29)

##### 4.29.1 Information Summary

Unit Description: This unit is located at the northeast corner of the Treatment Pits (SWMU #8). This unit receives treated wastewater from the Treatment Pits and discharges it to the Sewer Effluent Sump (SWMU #28). This sump is a below grade concrete sump (Ref. 35).

Dates of Operation: This unit began operation in 1950s and is currently active (Ref. 35).

Wastes Managed: This unit manages wastewater treated at the Treatment Pits (SWMU #8) (Ref. 35).

Release Controls: This unit is a concrete sump (Ref. 35).

History of Releases: One known release occurred from this unit on September 21, 1990 from a stuck float valve. No visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991. The integrity of the unit could not be ascertained during the VSI conducted on August 29, 1991 due to the presence of liquids (Ref. 35). Due to the nature of the materials managed, the unit integrity is expected to be intact, but this could not be confirmed.

##### 4.29.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is moderate due to the nature of the materials managed, and due to the fact that a release was observed to occur in this area.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the below ground location of the unit and the nature of the waste managed.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low due to the unit's design and the nature of the waste management operations at the unit.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the unit's low the nature of the waste managed and the unit's design.

#### 4.30 SWMU #30 - Container Storage Outside Laboratory (Photo 30)

##### 4.30.1 Information Summary

Unit Description: This unit is a loading dock used for drum storage. This area is located outside the plant QA/QC laboratory which is located in the Plant Office area. The Plant Office area is located in the eastern portion of the facility, west of the Drum Storage Area (SWMU #26). This above-ground unit is approximately 10 feet long and 8 feet wide. This unit is located on a concrete floor. The drums are closed and stored on pallets. This unit stores chemicals and laboratory supplies for conducting QA/QC testing of the various processes located at the facility. Small amounts of wastes are generated during these tests. Wastes are stored in the Waste Storage Area in Laboratory (SWMU #14) and are periodically transferred to the unit. From this unit, the wastes are transferred to the Drum Storage Area (SWMU #26). This area is used as a temporary storage area for 55-gallon drums containing products, lab waste, and recyclable materials (Ref. 35).

Dates of Operation: This unit began operation in 1962 and is currently active (Ref. 35).

Wastes Managed: This unit stores chemicals and laboratory supplies for conducting QA/QC testing of the various processes located at the facility. Small amounts of wastes are generated during these tests (Ref. 35).

Release Controls: This unit is located on a concrete floor (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

##### 4.30.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's location on a concrete floor.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete floor.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the drums are closed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.